

NOT TO BE TAKEN AWAY



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A CONTRIBUTION TO THE STUDY OF A GROUP OF
CASES OF CHRONIC RECURRENT DIARRHŒA IN
CHILDHOOD.*

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IN bringing forward this paper we feel that we ought to explain that only the gravity and particular interest of the group of cases, and the fact that we have some pathological data of value with regard to them, has encouraged us to embark upon such a well-known subject as the occurrence of diarrhœa in childhood.

The group of cases we are dealing with seems to us, clinically to be a definite one, and we will introduce the subject by a brief outline of some of the chief features as they have impressed us.

The first illness is usually a gastro-enteric attack in infancy, the result of some alimentary infection, or associated with some acute

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illness such as measles, whooping-cough, or broncho-pneumonia. During this attack there may be some vomiting, but as a rule diarrhœa predominates; the motions may be green or blood-stained, there is much mucus, and later their character is often described as "porridgy." Nourishment is taken badly, but there is often a craving for water. Recovery is slow and tedious, but there is no remarkable fever. Quite early in the convalescence it is discovered that although the child may have taken milk food well before the illness, or have managed with ease the ordinary diet of an infant between one and two years, now the least departure from extreme caution results in an exacerbation of the symptoms. Upon this point we lay much stress, for we have met with examples which, had it not been that they were under our own observation, we should hardly have realised that such extreme care could have been needed. To some, milk is especially obnoxious; for others, it is the amount of food, or some apparently simple variation in diet designed to improve their weight and strength, or lastly, some obvious but slight error that may bring about a speedy relapse.

Clearly associated with this is the extreme liability to such relapses after what has seemed to be comparative recovery.

Though usually due to diet, they may also follow chill or over-fatigue.

Whatever the cause, this is abundantly clear—that however trifling the exciting factor, the illness will be prolonged and intractable. When the condition has existed for some years there is a decided resemblance in the appearance of these children. They are anæmic, soft, and very weak on their legs. The abdomen is large and tympanitic and in bad cases infantilism is striking. One extreme case in adult life at the age of twenty-four seemed like a girl of sixteen years, and though quick and shrewd, was stunted and childish in frame.

We can hardly wonder that such a result occurs when we mention that one of our cases weighed $24\frac{1}{2}$ lb. at eleven months, 17 lb. at two years, $17\frac{1}{4}$ lb. at three years, and $25\frac{1}{2}$ lb. at four years of age.

Diarrhœa is not always constant in any particular attack; there may be intervals of constipation which may be associated with alarming meteorism and cardiac failure. The stools then are often quite colourless. We have never observed jaundice or even a suggestion of its occurrence in any of our cases.

With this brief introduction we now turn to our clinical cases. The first case, a fatal one, is the one which has chiefly led us to make this contribution, and has been followed for some years both

in the out-patient and in-patient departments of the Children's Hospital.

We are indebted to Dr. A. E. Garrod for the use of the notes while under his care.

CASE 1.—A. H—, male, aged 9 years at the time of his death, had an attack of enteritis when aged one, which lasted eight months and was associated with severe diarrhoea and abdominal swelling. In this illness he was treated at the Tottenham Hospital. He was one of seven children, another dying as an infant of diarrhoea. He came first to the out-patient department on July the 11th, 1908, when aged five, with a history of an attack of diarrhoea, which had already lasted three months. At its worst, blood had been passed and the motions were green. In the last weeks there had been sickness. He was wasted and pale. His tongue was clean and moist. His weight was 27 lb. The abdomen was slightly distended, but no masses could be felt. The spleen was not enlarged, but the liver could be felt $1\frac{1}{2}$ in. below the costal margin. The stools were large, light brown, soft and offensive. The lungs and heart showed nothing abnormal. His temperature rose once to 101° F. The provisional diagnosis of abdominal tuberculosis had been made, but Calmette's reaction was negative. Improvement was rapid with a milk diet and rectal lavage, salicylate of bismuth and opium, and he left at the end of the month for the convalescent home, where he remained another four weeks.

He was readmitted on December the 5th, 1908. Ever since his return home the stools had been loose, and diarrhoea with rapid wasting had recommenced six weeks before admission.

The boy looked very ill, with dark rings under his eyes, and was emaciated. A few enlarged glands were felt in the upper intercostal spaces. The abdomen was slightly distended and tender. The liver, as before, was enlarged. His weight was $30\frac{1}{2}$ lb. The urine (specific gravity 1014) contained a faint trace of albumen. The temperature was normal. This attack was more severe and there was daily vomiting. Calmette's reaction was again negative. The motions were at first four daily and then were reduced to two daily. Gastric and rectal lavage and lacto-bacillin brought about a gradual recovery in six weeks.

He was readmitted again in August, 1910, after an interval of about eighteen months, and remained until September the 8th, and again from October the 27th to November the 5th. On each occasion there had been a recurrence of diarrhoea with watery, light brown, offensive motions. There was extreme emaciation and he had a cadaveric appearance. His teeth, previously good, had now become much decayed. His abdomen was large and distended and some faecal masses could be felt. His weight was now 31 lb. The diet was milk, cream, rusks and custard. It was clear now that the condition was gaining upon the patient.

He was again readmitted on February the 11th, 1911, with the diagnosis of dilated colon or possible abdominal tuberculosis. There was a chronic diarrhoea, three motions a day, with extreme wasting. The stools when formed were white. The tongue was clean. For the first three weeks there was fever ranging between 101° and 99° F., while for four months at the convalescent home it ranged between 99° and 97° F. In other respects no new feature was noted. His weight was now 31 lb. The diet was milk, fish and chicken.

Once again he was admitted on September the 3rd, 1911, and remained in the hospital until February, 1912. His condition on admission was worse than it had ever been before. A detailed examination of the stools was made by Dr. Graham Forbes, then Clinical Pathologist to the Hospital. They were alkaline and creamy in consistency and colour. Films showed fatty crystals, *débris*, and the following bacteria:

(1) Gram-negative bacilli were predominant: (2) Gram-positive diphtheroid bacilli and (3) Gram-positive micrococci were also present. No pus or blood-corpuscles were recognised.

Culture.—Plate inoculation from dilutions yielded only growth of Gram-negative bacilli in abundance, and colonies subcultured gave most of the reactions typical of the *Bacillus coli communis* group.

In October the diarrhœa had reached nine or ten motions a day, and the urine reduced Fehling's solution. The sugar tolerance was tested by administration of glucose, 1 dr. every six hours.

On November the 7th the reduction of Fehling's solution ceased.

December the 2nd.—Mr. Kellock did appendicostomy, after which the large intestine was washed out daily through the wound, and 4 oz. of paraffin injected daily through the appendix. The medicinal treatment had been bismuth. Lactobacillin, a pint a day, sanatogen, milk and arrowroot, and a fancy diet were all tried.

Improvement after the operation was striking and the weight increased from 27 lb. to 34½ lb. He left the hospital early in February better than he had ever been before.

He was readmitted in July, 1912, after a week's recurrence of diarrhœa and vomiting. This time the stools were noted to be very loose and pale and suggestive of cœliac disease. The ward closing, he had to be sent out again at the end of the month and was readmitted for the last time on August the 30th, 1912. Diarrhœa had again returned but without vomiting, and his appearance resembled that of a child in the last stage of septic peritonitis. The temperature was 100° F., respirations 28, pulse 120. Weight 39 lb. The motions were frequent, very watery, offensive and light coloured. His liver was much enlarged. Vomiting developed after admission, and on September the 14th a sudden change for the worse occurred, with the development of severe abdominal pain and collapse.

The abdomen, previously distended, became flat but was not tender. General peritonitis was suspected and exploratory laparotomy done, but the patient never rallied and no explanation was found for the terminal symptoms.

The necropsy.—The necropsy was made twenty-four hours after death, and we will confine our description to the details that seem pertinent. The appendicostomy had been quite successful. There was no peritonitis nor excess of free fluid and the intestines were not distended.

The walls of the large intestine felt thickened, and on opening it, the solitary follicles were everywhere prominent and the mucous membrane thickened, corrugated and dotted with areas of very acute congestion. There was no breach of surface, but much mucus coating the membrane.

The cæcum and appendix shared in this change. There was general thickening also of the whole small intestine and the valvulæ were prominent, but the Peyer's patches were not enlarged. Between the valvulæ, the spaces were sown with raised areas resembling solitary follicles. Diffuse areas of acute congestion were present as in the large intestine. The stomach was also thickened, the mucosa in particular, and in addition was acutely congested, particularly at the pyloric end.

The gastric glands were unusually prominent. The lymphatic glands in the mesentery were considerably enlarged, pale and firm on section, as if unduly fibrous. The pancreas appeared natural.

The liver was very large, extremely pale and soft, and showed extreme fatty change. The gall-bladder and ducts were natural. The spleen was large, soft and pale. The kidneys showed pale cortices, but these were not swollen. The ureters and bladder were natural. The heart was very small and wasted, the lungs small but natural. No tuberculous glands were found in the thorax.

The particular features of the examination were: (1) Thickening of the walls with inflammatory changes affecting the entire alimentary canal; (2) the absence of striking

changes in Peyer's patches; (3) the absence of any obvious pancreatic lesion; (4) the abnormality of the liver; (5) the absence of any evidence of tuberculosis.

Microscopy.—As has been described, microscopic examination post-mortem revealed the presence of changes throughout the intestine; microscopic sections of the intestinal wall and of glands associated with the gut confirmed these findings.

On a careful examination it was found that, in addition to the more recent and acute changes present—possibly associated with the acute terminal infection referred to elsewhere—there was evidence of damage to tissues over a considerable period of time.



FIG. 1.—Section through inner coats of stomach wall. *S.R.*, cellular infiltration into mucous coat; *G.G.*, gastric glands cut excentrically; *C.V.*, congested blood-vessels; *E.*, fibrous hyperplasia; *M.*, muscle.

As will be seen, not only the intestine but glands secreting into its lumen were affected, and more remarkable still, changes were present in such remote organs as kidney and spleen.

In preparing microscopic sections Gaskell's method of embedding in formalised gelatine was used.

Sections were cut on a Sartorius carbon dioxide freezing microtome and stained: (1) with hæmalum and eosin to demonstrate general histology and congestion; (2) with hæmalum and Sudan III to show fats; (3) by van Gieson's method to show fibrous tissue. *Stomach*: There was acute congestion of the mucous membrane, with

here and there rupture of vessels and dehiscence of red cells on to the free surface of the mucosa. There was marked congestion also of the blood-vessels in the submucosa and extremely marked small round-celled infiltration between and amongst the gastric glands. In places the round cells were densely aggregated together into nodes of lymphoid tissue, and from these areas all proper secreting glandular tissue was absent. Such areas were always situated adjacent to zones where the inflammatory changes were most obvious.

There was definite increase in perivascular fibrous tissue in the muscular coat.

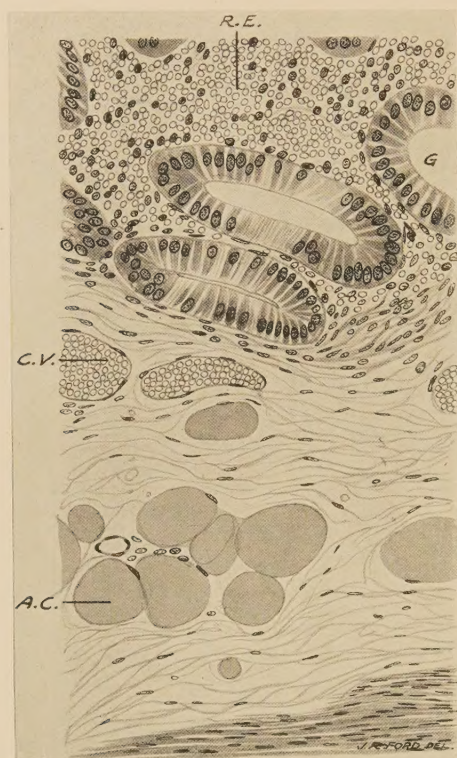


FIG. 2.—A section through mucosa and submucosa of large intestine (colon).
G., gland of large intestine; A.C., adipose cells; C.V., congested vessels;
R.E., red cells extravasated into mucous coat.

Study under higher magnification of the gastric glands demonstrated the presence of early fatty changes in the oxyntic cells, the fat-droplets staining brightly with Sudan III (v. Fig. 1).

Duodeno-jejunal flexure.—Sections again showed very marked congestion of vessels, and, in places, slight extravasation, together with marked interstitial infiltration, and here and there, on the free margin of the section, advanced fatty changes in the cells of the secretory glands.

Jejunum showed marked small, round-celled infiltration, prominence of solitary lymph-follicles, and congestion and hæmorrhage on to the free surface of section. Altered red cells were seen staining somewhat diffusely, purplish with hæmalum.

Colon.—There was extreme congestion with everywhere hæmorrhages into the mucous membrane. Cellular infiltration was less marked than in the small intestine (v. Fig. 2).

Liver.—Extreme changes were present. There was almost universal fatty degeneration of liver-cells. At the periphery of the lobules fatty changes were complete, and nuclear staining was often absent. Round the portal vein fat-globules were present, but degeneration was less extreme, although nuclear staining was definitely impaired.

There did not appear to be any marked change in the perilobular zones supplied by hepatic vessels.

Pancreas.—There was marked increase in the interlobular fibrous tissue, particularly that surrounding the ducts. In certain ducts, appearances suggested desquamation of lining epithelium. There was some congestion of blood-vessels, and the blood in the veins showed polymorphonuclear leucocytosis. The gland tissue appeared natural, but the capillaries were congested, and red cells—lying free amongst the gland-cells—were seen. In sections stained by Van Gieson's method early interlobular fibrosis was present.

Mesenteric glands.—No definite changes were found.

Suprarenals.—No changes were found.

Spleen.—This was engorged. There was some slight thickening of the capsule, with very marked increase in perivascular fibrous tissue and marked increase in extent of lymphoid (Malpighian) follicles.

Kidney.—Showed congestion, with some cloudy swelling.

Bacteriological investigations.—The mucous membrane was scraped off two or three different parts of the large intestine and smeared over three neutral red agar (Dr. Houston's "Rebipelagar") plates. Many red and colourless coliform colonies developed in twenty-four hours and also some streptococcus colonies. The red lactose-fermenting, coliform colonies and the streptococci were not studied further. Several of the colourless colonies on the "Rebipelagar" plates were studied in detail, and the organism proved to be a variant of the *Bacillus dysenterix* (Flexner).

Isolation of *Bacillus dysenterix* (type Flexner, modified) from the intestine post-mortem. It was a longish coliform, Gram-negative bacillus, non-motile, but exhibiting slight Brownian movement in young broth cultures.

On agar the growth was like that of the coli-dysentery group of organisms and gelatine was not liquefied. In broth, after five days at 37° C., a fair amount of indol was produced and tested for with the paradimethyl amido-benzaldehyde reagent. In milk the organism grew well; the reaction was slightly acid on the first day, neutral on the third day and markedly alkaline on the fifteenth day.

The fermentation reactions were as follows: On the first day acid and no gas in glucose, mannite, galactose, maltose, salicin and isodulcite. On the fourth day, some acid and no gas in sorbite and glycerine and slight acid in dextrin (four to seven days). No acid or gas was produced in lactose, saccharose, inulin, raffinose or adonite in seven days. The agglutination of this bacillus was tested with a *Bacillus dysenterix* agglutinating serum. At the time of use this serum had been prepared nearly two years, and its agglutinating titre was considerably lower than it had been.

It agglutinated the Flexner bacillus completely in a 250-fold dilution, partially at 1 in 500 and slightly at 1 in 2000. The bacillus isolated from this case was agglutinated, partially at 1 in 250 and slightly at 1 in 500 up to 1 in 2000.

There can be no doubt, therefore, that we are dealing here with a dysentery bacillus of the Flexner group differing from the type bacillus in only a few minor points. On referring to Morgan's paper in the 'Journal of Hygiene' for March, 1911, it will be seen that Flexner's bacillus produces no acid in sorbite, salicin, isodulcite or glycerine; whereas the organisms isolated from this case produce more acidity in all these media in two, four, or, as in the case of glycerine, in seven days. Cultures made from the

liver, spleen and mesenteric glands remain sterile. From the heart-blood *Bacillus coli* and streptococci were grown—to be regarded as a terminal or post-mortem infection.

This case is an extremely interesting one, because clinically it was regarded as one of colitis, with recurring acute attacks, without its dysenteric nature having been established.

Post-mortem: The condition of the large bowel closely resembled that of patients in asylums who have suffered from subacute or “periodic” dysentery. Outside asylums dysentery is usually stated to be rare in this country. In cases of summer diarrhœa American observers have found the dysentery bacillus, but Morgan, who made a careful study of the disease in this country, failed to find the dysentery bacillus in the stools. To show that infection with this bacillus is not so rare as is commonly supposed, we may mention that within four months of isolating the *Bacillus dysenterix* from the above case, similar organisms were isolated by one of us from two other children who came from widely separated parts of the country.

Our other cases were none of them fatal, and they will only be used to illustrate important points of likeness or features of special interest.

CASE 2.—This was a boy who was seen by one of us in consultation on several occasions. In some respects we think that this was a unique case, for an accurate daily record was made of the diet from May the 27th, 1909, to June the 12th, 1912—that is, a period of over three years. The weight was also kept from birth, and so we are able to give a graphic representation of the beginnings of infantilism in the form of a chart which we think is a very interesting one (Fig. 3). The records of this case also provide us with some concrete examples illustrating the extreme difficulties that arise in dieting such cases. This child was born in November, 1907, and was breast-fed for five months, and after this took cow's milk well until January, 1909, at the age of thirteen months, when he had “gastritis.”

In April, 1909, he had whooping-cough, and this was followed in May by diarrhœa, which was ascribed in part to dentition. The motions contained mucus, were porridgy in consistence and colour, and singularly odourless. From this attack he made a slow but steady recovery. In August, 1909, during some hot weather, a nurse gave him some unwholesome raw meat-juice, and a chronic diarrhœa developed which aroused no particular alarm until October the 2nd, when nearly two years old. Then he collapsed suddenly, and was apparently dying. The child, however, rallied from the collapse, but for the next three years there was a continual struggle carried on with the assistance of the most skilful trained nurses that could be obtained.

At birth he weighed $8\frac{1}{2}$ lb., at 1 year $24\frac{1}{2}$ lb., at 2 years his weight was 17 lb., at 3 years $17\frac{1}{4}$ lb., and at 4 years $25\frac{1}{2}$ lb. Among the most striking symptoms were intervals of extreme distension, general anasarca with fluid in the peritoneal cavity, attacks of heart failure and diarrhœa or constipation, with the passing of pale stools and mucus.

At the present time he is, with the aid of supports, just learning to walk, and the photograph taken when he was aged four shows that he looked like making a recovery, which at the age of five and a half, seems more assured.

and produced a slight but steady increase in weight: 21 oz. of cow's milk and 3 oz. of barley-water, 7 oz. of Savory and Moore's food, $\frac{1}{2}$ oz. orange-juice and 2 dr. of meat-juice, with 2 dr. of brandy; the amount of fluid was about 33 oz.

The following is an example of the results of hurrying the progress of the diet. The preceding diet had, as we have stated, enabled the child to rally, and after losing $3\frac{1}{2}$ lb. in the attack he had gained 11 oz. back in a fortnight. The next week he remained stationary, and, the dangers of the case not being brought home, a determined attempt was made to press on recovery. Four teaspoonsful of pounded sole were followed three hours later by a paroxysm of abdominal pain with some collapse. Then Savory and Moore's food was increased in a week from 7 to 27 oz. in the twenty-four hours. As a result, to the delight of all, the child increased $1\frac{1}{2}$ lb. in weight, but then followed dangerous collapse with great abdominal distension, which proved almost fatal on November the 22nd, 1909. By the following January the weight had dropped to its lowest (16 lb. 6 oz.) before once more the child commenced to make any steady forward step upon an almost starvation diet.

CASE 3.—This case is a very characteristic example of the condition we are considering, which illustrates the steady tendency to improvement which occurs without any clear reason. A boy, aged 5 years, was fed upon Ridge's food for seven months and weighed 16 lb. 2 oz., and at that age attracted much attention at a baby show. Later, however, rickets developed.

When two years and ten months old he and his sister had an attack of summer diarrhœa with green motions, for which, in the fifth week, he was admitted to the hospital and remained in twelve days. The chief emphasis then was laid upon the rickets. A return of diarrhœa occurred in the following summer, and he was readmitted with the provisional diagnosis of abdominal tuberculosis. He was then passing large motions, and while in hospital, from June the 8th to July the 22nd, 1912, he lost $1\frac{1}{2}$ lb. in weight. He was pale and soft, the belly protuberant and tympanitic, the liver was felt below the costal arch, von Pirquet's reaction was negative. Since that date the mother, who has been most attentive to the child, has had one continual struggle with his diet. Large white offensive motions were usually passed, and the least error produced diarrhœa, when the white colour of the motions became less evident. During the last twelve months there has been a slow gain, which was interrupted once by an interesting episode.

The boy's father, naturally irritated by the slow gain on the apparently starvation diet, in a moment of mental exaltation defied his wife and gave the child pork gravy and potato. The result was a prolonged attack of diarrhœa with the usual fall in weight. This child shows the infantilism, the pallor, the desire for drinking much water, the softness of tissues and tendency to tympanites. He has been at times very ill. Now he is slowly gaining ground and the motions are becoming coloured. It may be added that bismuth has been very helpful in the minor attacks. His weight at the time he attracted attention at the baby show, when aged 7 months, was 16 lb. 2 oz., now, at the age of 5 years, it is $29\frac{1}{2}$ lb. The course of events in this case was: (1) Rickets, (2) acute summer diarrhœa, (3) recurrent diarrhœa, (4) the appearance of celiac symptoms, (5) gradual convalescence with infantilism resulting from the previous illness.

CASE 4.—Male, aged 1 year 7 months, was under observation for eight weeks and was brought to hospital for an attack of diarrhœa of a fortnight's duration. When aged 10 months this patient had an attack of acute diarrhœa of the epidemic summer type, and from this he never fully recovered. He was breast-fed only during the first three months of life, and then given successively cow's milk, Nestle's milk, barley-water and Virol without success. His weight at birth was $6\frac{1}{2}$ lb. He was described as of marasmic appearance, expression somewhat anxious, rather ill-nourished. He was typically pot-bellied, the liver could not be palpated, but a dilated and thickened

colon was easily felt. There was no mass or any free fluid in the abdomen. The stools were characteristic, bulky, semi-solid, clay-coloured or almost white, offensive, and not infrequently possessing a marked cheese-like odour. Von Pirquet's tuberculin reaction was negative. No special attempt at dieting was made and he left hospital but little the better. His weight on leaving hospital was unchanged, 14½ lb.

CASE 5.—Male, aged 1 year 8 months. This boy was under observation from January to March, 1913, with "wasting" and "rickets." There had been diarrhoea at intervals since birth, the bowels opening three times a day; stools large, putty-coloured and offensive; at times there was mucus in stools. Frequent vomiting occurred some hours after food. Two months before admission to the hospital he had an attack of bronchitis, after which he was noticed to drag his right leg and had not been allowed to walk since that time. He had measles and pertussis when six months old, and has always been delicate. He was quite unable to take cow's milk, though formerly fed on milk and water, but since January the 18th he had tolerated Glaxo. On January the 28th he had an attack of laryngismus stridulus. When admitted to hospital on March the 3rd he was fairly well-developed, but there was definite evidence of rickets in the long bones and ribs. The abdomen was prominent, soft but not tender, and the liver could be palpated. There was impairment on percussion in the flanks and lower abdomen pointing to the presence of free fluid. Whilst in hospital he was rather constipated, only twenty-two stools being passed in twenty-one days. The stools were always pale, bulky, greasy and sour-smelling, they were never watery and contained neither mucus nor blood. His weight on leaving hospital was, as on admission, 1 st. 5 lb.

(*To be continued.*)

THE MECHANO-THERAPEUTICS OF CHRONIC INFANTILE PARALYSIS (POLIOMYELITIS ANTERIOR ACUTA).

By EDGAR F. CYRIAX, M.D.Lond.

DURING the last years a great deal of work has been done with regard to poliomyelitis anterior acuta. Special attention has been directed to its causes and pathology; the treatment has also been carefully studied, although chiefly from the point of view of electro-therapeutics and orthopædic operation. Mechano-therapeutics have, however, not received the attention which, in my opinion, is due to them. This seems partly due to the fact that instruction in these methods does not enter into the ordinary medical curriculum, neither the theory nor *modus operandi* receiving more than casual mention; in consequence the medical profession is inclined to under-estimate their possibilities. The mere fact of the treatment in question being loosely called "massage"—a term almost universally applied to it—is evidence as to what it is generally supposed to be, and the fact that nearly always it is prescribed merely as an adjuvant to electric or other treatments, but hardly ever alone, shows that it is generally regarded as having but little intrinsic therapeutic value.

Modern scientific mechano-therapeutics dates back to the days of

P. H. Ling (1776–1839), who founded the Royal Central Gymnastic Institute in Stockholm in 1813. Certain modifications of the original methods were made in the course of time by Ling's successors, notably Branting (1799–1881) and H. Kellgren (born 1837), and to the latter are due, not only many improvements of the technique, but also several new manipulations; as an instance of the former may be quoted the systematic application of "traction" in active and passive movements of joints, and as an instance of the latter his direct manual nerve stimulation by means of nerve-friction. In this paper I propose to describe the various manipulations applicable to chronic cases of infantile paralysis, with special reference to those employed by H. Kellgren, paying particular attention to the technique.

The pathology of the disease, respecting the motor troubles that have to be dealt with, is that there is a degeneration in the cells of the anterior horns of the grey matter, with consequent degeneration in the motor nerves emanating from them and in the muscles supplied by them, *i. e.* there is a more or less complete degeneration and paralysis in the lower motor neuron.

The rational treatment of such a condition should have for its object the re-establishment of the interruption in the motor channels, and the method, in brief, consists in endeavouring to force this interruption both from below upwards and from above downwards. The following measures are those employed:

I. LOCAL TREATMENT:

A. Passive stimulatory manipulations on the lower motor neuron and the muscles supplied by it.

B. Passive stimulatory manipulations at the site of the damage in the spinal cord.

C. Active stimulation of the upper neuron, *i. e.* active endeavours to move paralysed muscles.

II. GENERAL TREATMENT:

I. LOCAL TREATMENT.

A. *Passive Stimulatory Manipulations on the Lower Neuron and the Muscles supplied by it.*

(1) *Passive stimulatory manipulations on the affected muscles.*—

(i) *Pétrissage*.—I purposely refrain from adopting the term "massage"; in the first place this word has no standard meaning attached to it, some authors confining it to stroking and kneading, and others applying it indiscriminately to every form of passive and active manipulation and exercise, and secondly, because most authors

assume massage to be administered with the intervention of vaseline or other lubricant, a method which personally I never employ, and which is quite distinct from the dry form of *pétrissage* used to stimulate muscles. The following is the description of the technique: The operator's fingers and thumb are kept as far as possible extended in their interphalangeal joints, although as loose as is compatible with the proper elastic execution of the movement. The method of application depends on the situation of the muscle under treatment. Should more than one surface of the patient's muscle be accessible, the operator grasps that muscle between his fingers and thumb; the point of application of his grasp being, however, not over the actual part to be kneaded, but a little above it. Then, the skin of the patient moving in unison with them, the operator moves his fingers and thumb backwards until they lie over the part in question. If the condition laid down be not complied with, the range of the movement is diminished. The patient's skin moving constantly together with them, the operator's fingers and thumb are carried forwards in a centripetal direction, meanwhile applying pressure towards one another and against the underlying structures until the patient's skin is on the stretch, when the forwards movement should be arrested. Then, the operator's fingers and thumb, relaxing their pressure, pass back again to their original position. The direction of the movement should not be simply forwards and backwards, but more in the form of an ellipse, so that the patient's muscle is moved alternately to one side, when the fingers proceed forwards, and to the other side during the reverse process.

Should only one surface of the muscle be accessible, the operator uses only the fingers (or else only the thumb), placed over the part to be manipulated. The kneading takes place as before, with pressure exercised towards the underlying structures. The manipulation can be administered with one or both hands. In the latter case the hands are placed at a different level, and both alternately execute the same movement as did the one hand; or else the fingers of the one hand can be used to replace the thumb of the other. In the former case the second hand is used to steady the part manipulated.

When applying the *pétrissage* it is unnecessary to denude the part of clothing; indeed, unless special circumstances make it desirable, it is generally better to have this underclothing intervening, as this minimises the possibility of skin irritation. I entirely disagree with those authors who state that any form of massage applied over clothing is simply quackery.

The effects of pétrissage of muscles.—A very large amount of clinical and experimental evidence is to hand. Various authors have at different times found effects on the venous, arterial and capillary circulation, the lymphatic flow, recovery from fatigue, electrical actions, sensations of various kinds, temperature, etc. It is unnecessary to mention them here further than to say that most authors ascribe the beneficial effect to circulatory influences and the removal of fatigue products. It has, however, been demonstrated that massage can remove fatigue in muscles in which the entire circulation has been stopped; furthermore, that massage can increase the power of a muscle before it has been fatigued. The latest and, in my opinion, the most conclusive researches are those of Palmén and Rancken, who have demonstrated that practically the entire effect of *pétrissage* is due to its stimulating the vital activity of the muscle cells, and that the circulatory changes it induces play a most subordinate rôle, if any at all. Indeed, if such circulatory changes were of importance as regards healthy muscles, it is obvious that they would not be so in the atrophied muscles of poliomyelitis unless at the same time the vital activity of the lower neuron were stimulated to avail itself of such changes.

In view of these considerations, it is evident that the more superficially *pétrissage* is applied the less will it achieve the desired result. Therefore the use of vaseline and other lubricants is entirely to be condemned, as they convert a deep massage of the muscles into a superficial one that does little more than affect the skin, as the operator's fingers glide over the skin instead of his fingers and the skin moving as one over the muscles. Further, it should be noted that another objection to their use is that skin secretion is prevented by clogging up the orifices of the sebaceous and sweat-glands, a proceeding that is liable to produce unpleasant effects, as any form of massage over the skin greatly increases the insensible perspiration. A frequent consequence is that the so-called massage eruptions ensue, and the treatment has to be stopped until these have passed away.

For all these reasons it is of course obvious that mere stroking movements, *i. e.* effleurage, with the aid of such lubricants are, as regards the disease under consideration, a futile and pointless waste of time and energy. Should anyone suggest that such effleurage promotes the nutrition of the skin (certainly a desirable result), the only necessary comment is that properly applied *pétrissage* of the muscles effects the same far more thoroughly, and that in any case improved vital activity of the lower neuron is a necessary preliminary

to the skin becoming capable of availing itself of the circulatory changes (as mentioned above)—a condition that effleurage can only evoke to a very slight degree, if, indeed, at all. Attend to the spinal cord and the muscles, and the skin will take care of itself.

The question arises, for how long, during each *séance*, should *pétrissage*, in the manner described above, be applied? Bearing in mind the effect that it produces, namely stimulation of the vital activity of the cells, and there being no question of its use in order to break down adhesions or remove œdema in the disease under consideration, it is obvious that lengthy application only results in overstimulation, and thus produces the contrary of the effect desired. In practice a few minutes, say two to five, is sufficient, and only so much as this when dealing with a large muscle or group of muscles that has to be worked over bit by bit. Indeed, better results are often obtained by dividing such an application of, say, three minutes into three separate ones of one minute each with suitable intervals. It is, as a matter of fact, actually fortunate for the patients who suffer from poliomyelitis that modern massage with lubricants is applied so as *not* to affect the underlying muscles to any great extent, otherwise the daily application lasting twenty or thirty minutes (quite a common period prescribed) would prove the very opposite of beneficial.

(ii) Another kind of manipulation which differs markedly from the above-mentioned *pétrissage* is one which resembles a nerve-friction. The technique is practically the same as for nerve-friction, except that the manipulation is applied transversely across a muscle instead of a nerve. A distinct snap of the muscle should be felt by the operator—frequently also by the patient—as the fingers pass across it, and the patient experiences a not altogether unpleasant sensation of stimulation. A dull boring pain is an indication that the manipulation has been wrongly applied, and generally results from too great and too prolonged pressure, or because the manipulation has been carried out too slowly.

Such frictions can be applied in the above manner to both the fleshy portions of the muscle and its tendon. Concerning the effects on the latter, it can be shown that they sometimes produce markedly stimulatory results, *e.g.* in case of weakness of the quadriceps femoris. With the thigh horizontal and the knee flexed to a right angle, the patient can perhaps only just manage to effect a slight amount of contraction of the muscle in question, so that the foot travels through an arc of 5 degrees or less; after a few energetic frictions on the patellar tendon, the foot can often voluntarily be moved through an arc of, say, 30 degrees or more. The

mechanism by which this is brought about is no doubt the same through which is caused the contraction of the muscle when testing for the patellar reflex.

(iii) *Tapotement over muscles*.—This can be applied in various ways, of which hacking and clapping are most applicable to muscles. They may be defined as the administration in rapid succession of a series of short, sharp elastic strokes with the hand. It is in every case of the greatest importance that the fingers, wrist- and elbow-joints of the operator be kept loose during their application.

(a) *Hacking*.—The forearm is placed in the mid-position with the fingers slightly separated from one another, the first finger being almost fully extended in both metacarpo-phalangeal and interphalangeal joints, each succeeding one being slightly more flexed. By means of extension of the forearms with a certain amount of supination and ulnar flexion at the wrist, alternated by the reverse, the operator's hand applies a series of light blows to the part it is desired to stimulate, the dorso-ulnar surface of the fingers and the distal portion of the ulnar surface of the palm being the actual parts to come in contact with it. The movement should be as little as possible generated from the elbow-joint, but as much as possible from the joints below it. Keeping the wrist and fingers stiff, and generating the movement from the elbow-joint, renders the hacking hard, heavy, inelastic and unnecessarily painful, which is still more the case when the elbow-joint also is kept stiff. Both these defective methods are, however, advocated by more than one author.

(b) *Clappings*.—The method is the same as for hacking, except that the palmar surface of the fingers, with or without the distal part of the thumb and palm in whole or in part, comes into contact with the area to be treated. The movement is generated by alternate flexion and extension of the wrist and elbow-joint, the former being employed as much as possible, the latter as little as possible, just as in the case of hackings.

As regards the length of time of administration, a few seconds to half a minute at the most at each time is generally sufficient. Longer applications than this, as in the case of *pétrissage* described above, easily tend to over-stimulation.

The effects of these manipulations are :

(1) Direct :

(a) Stimulation of the muscle substance.

(b) Stimulation of the sensory and motor nerves in the muscle.

(c) Stimulation of the larger nerve-trunks lying in the area thus treated.

(2) Indirect : Stimulation of the sensory nerves causes stimulation of the spinal cord, with resultant stimulation of the motor nerves running from it to the muscles. (See also effects of nerve-frictions.)

(2) *Frictions on the nerves leading to and from the muscles.*—(The word “friction” in this case denotes something very different from that form of massage which unfortunately bears the same name.) I have described the technique of nerve-frictions on so many occasions (2) that it will only be necessary to give a short *résumé* of the method. Frictions may either be stationary or running; the former are administered as follows : The part of the body in which the nerve lies is placed in such a position that the muscles, fasciæ, etc., that lie superficial to the nerve are relaxed. The nerve should then be exactly located either through knowledge of topographical anatomy or by means of the sense of touch—a much greater number of nerves can be palpated than is generally supposed. The operator may then employ the tip of either the first or second finger or the thumb, or the tips of the forefinger and thumb in apposition; the exact method depends upon the site of the nerve, the intensity with which it is desired to apply the friction, etc. The operator places the digit or digits to the side of the nerve to be treated and moves it (or them) across the nerve at right angles to its long axis, a slight amount of pressure being applied at the same time. It must here be insisted upon that it is of the utmost importance that the skin of the patient and the manipulating digit should move as one over the nerve, as otherwise merely a scratch of the skin results, the nerve being left absolutely unaffected. As soon as the nerve has been traversed, the pressure is released; then, either a friction is applied in the reverse direction, thus arriving at the original position, or the digit is passed lightly back to it. The manipulation is repeated several times, each individual friction occupying about a quarter of a second. The commonest mistakes made by beginners in administering nerve-frictions are, first, that the finger applies a great amount of pressure before the friction is executed, and secondly, that the actual friction is executed by *slowly* passing the finger over the nerve. This is exactly the reverse of what should be done, as the nerve tends to be paralysed in consequence of such a degree of pressure being applied, and if too slowly applied, the manipulation fails to cause any stimulation of the nerve.

As regards running frictions, these are applied differently in the case of deep-seated and cutaneous nerves respectively. On deep-seated nerves they may be carried out in one of the two following

ways: (a) A series of stationary frictions is applied at different levels successively in the course of the nerve, proceeding either in a centrifugal or centripetal direction; (b) a series of zigzag frictions is applied, successively crossing and re-crossing the nerve either in a centrifugal or centripetal direction. In the case of cutaneous nerves, the backs of the nails of one or more fingers are placed over the area to be treated; they are then moved across it either with a simultaneous zigzag movement or else with simultaneous vibration.

Nerve-frictions are applied—

- (a) Locally to the nerves supplying the affected muscles.
- (b) On the main nerve-trunks above the affected muscles.
- (c) On the cutaneous nerves of the affected part.

Stated briefly, the effects of nerve-frictions are to produce a mechanical stimulation of the nerves to which they are applied; this stimulus does not spread merely centrifugally in the case of motor nerves and merely centripetally in the case of sensory ones, but in both directions along each of these sets of nerves in consequence of the law of double nerve-conduction. Considered somewhat more in detail, the results are:

- (a) Stimulation of the motor elements of the nerves.
- (b) Stimulation of the sensory elements of the nerves.
- (c) Stimulation of that portion of the spinal cord through which run the nerve-fibres to and from (a) and (b), with resultant excitomotor reflex of repair in the degenerated nerve-cells, nerve-fibres and muscles.

(d) A local vaso-constriction in the part supplied by the nerves stimulated, followed very soon by a vaso-dilation in consequence of increased activity in these muscles and their nerves.

(3) Passive movements at joints: In the disease under consideration, where stimulatory measures are being aimed at, all such passive movements, whether flexion, extension, abduction, adduction, rotation, or circumduction, must be applied briskly, energetically, and (unless contra-indicated) through their fullest range. Practically the only contra-indication to be met with is in the case of disturbed antagonism between two sets of muscles, in which case care should be taken to avoid stimulating the set that are too strong by stretching them too much or by applying a jerk to them. Such stimulation would only cause a double undesirable effect, namely, a direct increase in their power as well as a reflex decrease in the strength of the already weakened antagonists, in accordance with Sherrington's law.

The stimulatory effects of the above-mentioned passive move

ments at joints are greatly heightened by the simultaneous employment of "traction," that is, when possible the operator always elongates the part to be exercised by stretching its distal free end away from its proximal fixed one, maintaining this condition throughout the movement. The effects on the muscle is to increase its power, for the greater the amount of elongation (within the physiological limit), the greater the power of the muscle to do work. There result also stimulation of the nerves of the part through their being elongated, increased absorption by the lymphatics and promotion of the circulation generally.

B. Passive Stimulatory Manipulations at the Site of the Damage in the Spinal Cord.

These are as follows :

(1) Frictions on the posterior divisions of the spinal nerves whose anterior branches are affected : the technique of nerve-frictions has been described above. The effect of these manipulations is to stimulate the anterior nerves ; it has long ago been shown that excitation of a posterior root causes currents of action in the anterior ; in normal subjects, frictions on any of the lower posterior dorsal nerves generally causes contraction in the corresponding segments of the anterior abdominal muscles.

(2) Frictions on the anterior divisions of the affected spinal nerves : These have practically been described when considering nerve frictions on the main nerve-trunks above the affected muscles.

(3) Hacking over the affected portion of the spinal cord : The effect of this is to stimulate the underlying portion of the spinal cord as well as its nerves ; the former (3) appears to be much more susceptible to mechanical stimuli than is generally supposed.

c. Active Stimulation of the Upper Neuron, i.e. Active Endeavours to Move Paralysed Muscles.

This is effected by judicious selection from the large number of gymnastic movements that exist. A few general directions may here be given. The position of the patient's limb, and the fixation used, should be such that groups of muscles or even individual muscles are isolated, and can thus be exercised singly, so that the entire attention of the patient can be concentrated upon them or it. Special consideration should be given to such movements enabling

the patient to realise that active contractions are becoming possible in muscles until then considered by him to be totally paralysed, as the psychic effect is of great value, especially in children. (A few details will be discussed when considering the different methods of testing for active contraction.) As in the case of passive movements, the "traction" should be applied throughout the performance of active movements. I wish particularly to emphasise this point, as the use of the traction through its elongating the muscles and its general stimulatory effects greatly increases the power of muscles to do work, and makes it possible to obtain marked evidence of muscular contraction when the same movement without the use of traction would fail to elicit the same.

Every movement should be performed with the attention of the patient fully concentrated upon it, and the patient should endeavour to use all available energy in order to try and perform the movement. This is because—

(a) The greater the amount of energy sent down the crossed pyramidal tract, the greater the tendency to break through the block in the damaged nerves.

(b) The greater the efforts of the motor areas, the more readily vaso-dilatation ensues in the muscles supplied by them, as this depends partly upon a reflex through the cerebral motor areas (4).

In the disease under consideration it is of the greatest value to determine whether a given muscle is capable of voluntary contraction or not; as an example may be taken the anterior tibial muscles. The usual way recommended of testing these muscles is to place the patient on his back and then request him to flex the foot. If no movement results the diagnosis of complete motor paralysis is to be made. This test, however, consists merely in trying the power of concentric contraction against the pull of gravity, and is therefore not at all conclusive. And in any case the fact that no such movement occurs does not necessarily imply that there is actually no power of static or excentric contraction; neither, again, does the absence of either of these latter necessarily mean that the muscle is entirely incapable of voluntary activity. Further tests may be applied as follows:

(1) For concentric contraction:

(a) Extend the ankle as far as possible, applying traction, and ask the patient to flex it. The traction should be maintained throughout the patient's efforts, as it elongates the muscles to a greater degree than is possible actively. Not unfrequently it is found that the patient can contract his foot back again to the

position it would occupy in full extension without the application of traction.

(b) Slowly flex the ankle while the patient endeavours to aid in the execution of the movement; compare the result with passive flexion without such assistance.

(2) For static contraction: Slightly flex the ankle and ask the patient to keep it in that position while the operator's grasp is slowly relaxed. If in doubt as to the result, ask the patient to stop his efforts suddenly and watch for any movement indicating relaxation.

(3) Excentric contraction: Passively flex the foot and extend it alternately several times in order to obtain the exact feel of the amount of muscle tonus. Then, having flexed the ankle once more, slowly extend it, *i. e.* allow it passively to extend itself, asking the patient meanwhile to try and prevent the movement taking place. Compare this with the former.

Should none of the methods described succeed in eliciting any sign of contraction, the following additional methods may be adopted before applying the above tests:

(a) Eliminate the action of gravity. In the case specified this would be obtained by placing the patient on his side.

(b) Reduce the tension in the calf muscles either by placing the patient as in (a), and then flexing the knee to a right angle or more, or else by grasping the calf muscles in their upper part and then pressing the fleshy mass downwards towards the heel.

(c) Apply stimulatory measures to the muscles, such as frictions on its nerves, *pétrissage*, hacking, etc., or energetic foot flexion and extension, rolling, etc.

If, finally, no sign of any voluntary muscular contraction can be elicited, it is still possible that it may exist in the form of what I may call "invisible contraction," the sign of which is that a feeling of fatigue or stiffness in the anterior tibial muscles may ensue, the former very soon after the cessation of the efforts at movement, the latter perhaps not for some hours. This is a sign that active muscle contraction is not absolutely gone, and that with correct treatment it will not take long to improve it so much that actual visible contraction will supervene.

It will not be out of place here to say a few words on the treatment of contractures and deformities due to disturbances in muscular equilibrium. The literature dealing with the treatment of these conditions shows that many authors recommend massage and stretching of the contracted (*i. e.* more powerful) muscles. Now

this is the reverse of what is the correct treatment. The weakened muscles, not the stronger ones, are the ones that are to be exercised, and passive elongation of the contracted (more powerful) muscles should only be attempted simultaneously with, or immediately followed by, energetic voluntary contraction of the weakened muscle. Dr. A. Kellgren-Cyriax and I have recently emphasised these points in an article on torticollis and its treatment (5), to which the reader is referred.

The treatment which has thus been outlined should be commenced as soon after the acute stage as possible. After the fever and the constitutional disturbance have passed off there is no reason for delaying to begin it, provided that due care is exercised. Nature herself gives the clue to the correctness of this view. In any case of poliomyelitis, where both arms or both legs are affected, one leg or one arm practically always begins to recover first, and is the one which is employed by the patient to the exclusion of the other, generally, indeed, having thus to do double work. Almost always this first limb to recover continues to improve rapidly, and permanently remains the stronger of the two. Now, were it harmful to exercise that limb, it would very soon become the weaker of the two. This, however, does not happen, and this in spite of the fact that the movements it is put through are *not* selected on scientific principles, but merely take place according to the wish or fancy of the patient.

II. GENERAL TREATMENT.

By this is meant abdominal *pétrissage*, frictions on all the posterior spinal nerves, breathing exercises, etc., some or all of which, if necessary, should be added to the local treatment.

A question often asked is the following: Do not mechano-therapeutics prove more efficacious when combined with the use of electrical treatment or the administration of strychnine or other nerve stimulatory drugs? I can only answer in the direct negative, and the result of my experience is as follows: Cases that have improved under the latter methods almost invariably improve far more quickly when mechano-therapeutics are used, not as an addition, but as a substitute. Cases that have remained entirely refractory to electrical and drug treatment usually undergo amelioration with mechano-therapeutics, generally with a difficulty more directly proportionate to the length of the previous treatment than to the time the disease has lasted. By far the most favourable cases are those

in which no previous treatment has been undergone, and this holds good even with those of comparatively long standing. I have also noticed that patients who were compelled through various circumstances to stop mechano-therapeutics on the lines laid down above, and who have resorted to electrical treatment, have improved at a far slower rate, indeed in some cases have not improved at all.

In conclusion, I cannot but state my opinion that were the above-described methods of mechano-therapeutics adopted early in cases of infantile paralysis, and to the exclusion of other methods, many more cases would make a good recovery, and the greater number of them would certainly make a perfect one.

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CASE OF SUPPRESSION OF URINE IN A BOY AFTER OPERATION FOR ACUTE APPENDICITIS, CURED BY DOUBLE NEPHROTOMY.*

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A BOY, aged 11 years, was admitted into Westminster Hospital at 10 p.m., on August the 8th, 1913; he was operated on the same night for acute appendicitis. The tip of the appendix was acutely inflamed and contained pus, which, as the appendix was being delivered through the wound, burst through the appendix wall and was caught upon a gauze pad; the pus did not foul the peritoneal cavity. There was a little free fluid in the peritoneal cavity; a rubber drainage-tube was inserted in the wound and reached to the site of the appendix; the rest of the wound was sewn up. As soon as the patient returned to the ward saline solution was administered *per rectum*.

* This case was shown on December the 12th, 1913, at the Clinical Section of the Royal Society of Medicine.

August the 9th: The boy was sick twice. During the twenty-four hours 8 pints of saline solution were given.

August the 10th: During this day 10 pints of saline solution were given *per rectum*. No fresh abdominal signs manifested themselves; the drainage-tube was removed and a gauze plug inserted. The patient had by this time received 2 gr. of calomel in $\frac{1}{2}$ -gr. doses, and the bowels were moved twice.

August the 11th: Patient quite comfortable; the bowels were moved twice; the temperature reached 100° F. in the middle of the day, the pulse was 86, and the respiration 34; in fact the condition was perfectly satisfactory.

August the 12th: At 2 a.m. the patient complained of pain in the left loin, and vomited three times. He was given 3 minims of oil of cajuput at 2 a.m. and 1 minim of tincture of iodine at 4 a.m. The pain got easier later in the morning. The feeds given consisted of lemonade and milk with barley-water; the boy was sick after each feed. At 11 a.m. he passed about 3 dr. of urine deeply stained with blood (the deposit obtained by centrifugalising showed blood and bacteria, both bacilli and streptococci; there were no casts).

August the 13th: The patient still has some pain, and it is now in both loins. His colour is not good and the pulse is weak. No urine has been passed since 11 a.m. yesterday. To-day about 3 dr. were voided, looking like undiluted blood. This on being centrifugalised showed blood, pus, black pigment-granules, oxalates, and a few large cocci; there were no casts. Hot fomentations to the loins have been continuous since yesterday. At 5 p.m. a hot pack was given, as vomiting was persistent. The boy seemed more comfortable until 7.30 p.m., when he had a convulsion—the face twitching and the eyes fixed; 2 pints of citric acid solution were given *per rectum*. At 8 p.m. he was unconscious and the pulse feeble; 3 pints of saline solution were given intravenously, and 2 pints *per rectum*. A hot-air bath was given. The skin did not get moist. 8.45 p.m.: The pulse became very feeble—was only just perceptible. At 9.20 p.m. the patient was taken to the operating theatre, and I rapidly exposed both kidneys and freely laid them open, cutting through the substance of the kidney and exploring the pelvis in each case; no stone could be felt in either. Each kidney seemed to me much larger than normal, particularly the left, and each felt *tenser* than normal. From the left kidney I excised a small piece for microscopical purposes. Both kidneys bled profusely (as usual), and both were plugged with gauze packing. As far as the gush of blood from the cut kidney would allow one to express an opinion,

I did not find any urine in either pelvis. The patient was taken back to the ward, and at 9.45 p.m. 10 minims of brandy were given hypodermically and 2 pints of saline solution administered subcutaneously.

August the 14th: At 12.15 a.m. the voluminous dressings had become sodden and needed packing; it was evident that urine as well as blood had soaked these first dressings. So profusely did fluid discharge from the kidney incisions that fresh packings were necessary at 3 a.m., 5.30 a.m., 6.30 a.m., 8 a.m., 9 a.m., 10.45 a.m., 1.30 p.m., 5.30 p.m., 7.45 p.m., and 11.30 p.m. The bladder was washed out at 11 a.m. The pulse was much stronger, and the patient was quite comfortable; he did not vomit, and there was no further convulsion.

August the 15th: The boy is much better, and the pulse much stronger; he has slept fairly well, he has taken his food well, and has not vomited. The dressings were frequently changed.

August the 16th: At 3 a.m. the temperature rose to 102.6° F. The patient passed $2\frac{1}{2}$ oz. of urine *per urethram*; this was darkly coloured with blood. The bladder was washed out. At 12.30 p.m. $1\frac{1}{2}$ oz. of urine were passed; at 3 p.m. the temperature was 103.6° F.

August the 17th: The patient had a very good night; his temperature has fallen to 100° F. During the twenty-four hours he has passed 29 oz. of urine.

August the 19th: Under an anæsthetic I removed the gauze plugs from the kidney wounds and substituted others.

The remainder of the history is uneventful. The patient made an uninterrupted recovery.

Dr. R. G. Hebb, who has examined the portion of kidney removed at the time of the operation, reports: "Malpighian bodies large, and the capillaries engorged; in some there is a coagulum. The lumen of tubes is large, the lining cells are small and finely granular, the nuclei are normal. Some tubules contain a finely granular detritus, and others a homogeneous substance (possibly casts). The condition is of recent origin. There is no evidence of septic inflammation or of any growth. The kidney is in a condition of 'cloudy swelling.'"

I have only to add to these notes that the urine is now normal, hence we may assume that the urine was normal before the attack of appendicitis, and so it is clear that in this case we have been dealing with an almost fatal attack of suppression of urine in a patient whose kidneys were previously normal.

A RETROSPECT OF OTOTOLOGY, 1913.

By MACLEOD YEARSLEY, F.R.C.S.,
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NOTHING of exceptional note has stirred the otological world during 1913, even though an International Congress has been held in London.

In *Anatomy* there have been two papers, one on the "Topography of the Tympanic Cavity," by Cavanaugh (A. of O., xxii, 699), and one on "Radiographic Findings illustrating the Anatomical Development of the Mastoid," by Stewart (A. of O., xxii, 677).

Three papers of use in *Clinical Investigation* are Haskin's "Ocular Manifestations in Nasal and Aural Diseases which probably indicate Involvements of the Sympathetic Nervous System" (A. of O., xxii, 384), Walker Wood's "Direct Examination of the Eustachian Tube and Naso-pharynx" (J. of L., xxviii, 568), and Macleod Yearsley's "On Errors of Diagnosis in Ear Disease" (C. J., xlii, 577).

In the subject of *Middle-ear Suppuration*, two papers—one on the importance of its early recognition, by Hammond (B. M. S. J., clxvii, 725), and one on the neglect and proper treatment of acute suppuration, by Alexander (A. of O., xxii, 159)—strike a warning note to general practitioners; and Prendergast and Schultz (C. M. J., xii, 146) describe acute suppurative otitis media due to the *Bacillus typhosus*.

It is not always easy to winnow the plethora of papers which appear annually on *Mastoid Surgery*, but of those in 1913 the best are probably: Borden (B. M. S. J., clxviii, 221), on "Diseases of the Middle Ear and Mastoid Cells, based upon a Study of 454 Autopsies and 2232 Cases of Diphtheria, Scarlet Fever and Measles"; Verel (J. of L., xxviii, 234), on the "Significance of Fever in Cases of Mastoiditis complicating Acute and Chronic Suppurative Otitis Media"; F. Law (A. of O., xxii, 635), Dixon (A. of O., xxii, 369), and Sohler Bryant (A. of O., xxii, 482), on "Radiographical and Other Indications for the Mastoid Operation"; Ingersoll (A. of O., xxii, 629), on the "Operative Findings and Results of Mastoiditis"; Lithgow (J. of L., xxviii, 589), on the "Importance of a Painless 'First Dressing' in the Radical Mastoid Operation"; Milligan's address (B. M. J., 1913, ii, 729), opening a discussion on the technique and after-treatment of such operations; and Hammond's paper (A. of O., xxii, 652) on the same subject. The use of scarlet-red as a dressing receives attention from Ross (J. of L., xxviii, 187), and

Fraser discusses erysipelas following the radical operation (J. of L., xxviii, 472).

Of the *Intra-cranial Complications of Middle-ear Suppuration*, the most important paper is that by Milligan (J. of L., xxviii, 242), on the "Treatment of Meningitis of Otitic Origin." Stockdale (J. of L., xxviii, 1) reports the case of a boy, aged 12 years, in whom serous otitic meningitis, with septic thrombosis of the lateral sinus and internal jugular vein, was successfully treated by operation. A case of brain abscess of aural origin in a boy, aged 16 years, is recorded by Murphy (J. of L., xxviii, 587).

As regards *Non-suppurative Middle-ear Disease*, the greatest work has been done from the point of view of *prevention*. Under the auspices of the National Bureau for Promoting the General Welfare of the Deaf, Kerr Love has published his four fine lectures on this subject. Two strong resolutions on the necessity of including specialists upon the medical staffs of fever hospitals have been passed by the International Congress and by the London branch of the Association of Medical Officers of Health, the latter after a paper by Macleod Yearsley (P. H., xxvi, 369) on the "Prevention of Acquired Deafness." The question is attracting the attention of leading otologists in America, as shown by papers by Reik (J. H. H. B., xxiv, 289), Hudson-Makuen (N. Y. M. J., xcvi, 305), Sheppegrell (N. O. M. S. J., lxi, 291), Hays (N. Y. M. R., 1913, i, 646), and Sohler Bryant (J. A. M. A., lx, 878).

Other papers of value to pædiatric otologists are: "Ear, Nose and Throat Work in General Practice," by Costobadie (P., 1913, i, 579); "Primary Tuberculosis of the Middle Ear," by Long (A. of O., xxii, 499); and "Hysterical Deafness in Children," by Arnold-Jones (M. C., xxvi, 31).

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- A. of O.—'Annals of Otology.'
- B. M. J.—'British Medical Journal.'
- B. M. S. J.—'Boston Medical and Surgical Journal.'
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- N. Y. M. R.—'New York Medical Record.'
- P.—'Practitioner.'
- P. H.—'Public Health.'

Royal Society of Medicine.

SECTION FOR THE STUDY OF DISEASE IN CHILDREN.

Friday, January the 23rd, 1913.

The President, DR. LEONARD GUTHRIE, in the Chair.

A Case of Kala-azar.—Dr. T. R. WHIPHAM showed a boy, aged 5 years, whose father had contracted kala-azar in Calcutta a year ago and died recently from that disease. In March, 1913, when in Calcutta, the boy was taken ill with fever and loss of appetite. The motions at that time were white, but otherwise normal. The abdomen was enlarged when he arrived in England in June, since when he had lost weight and the size of the abdomen had increased. The child was wasted, especially in the limbs and chest; the cervical, axillary, and inguinal glands were enlarged. The abdomen measured $24\frac{1}{2}$ in. in circumference; the liver extended 3 in. below the costal margin; the spleen was enormous, extending to the middle line and filling the left iliac fossa. Blood-count: reds, 3,220,000 per c.mm.; whites, 2200; polymorphonuclears, 46 per cent.; lymphocytes, 38 per cent.; large mononuclears, 12 per cent.; transitionals, 4 per cent.; hæmoglobin, 66 per cent. The coagulation-time was diminished, being twelve minutes. Leishman-Donovan bodies were present in blood obtained by puncture of the liver. The urine was normal, and the motions were now of a proper colour.

Athetoid Movements in a Girl, aged $4\frac{1}{2}$ years.—Dr. WHIPHAM.—The movements, which were present in either hand, consisted of alternate pronation and supination, which became more marked when objects were grasped. She was the first child of her parents, and was born after a difficult labour. The condition was probably due to injury at the time of birth.

Malaria in a Girl, aged $3\frac{1}{4}$ years.—Dr. F. LANGMEAD.—The disease, which commenced in September, 1913, was typical and accompanied by rigors. The mother had malaria while the child was being breast-fed. The spleen extended downwards for four fingers' breadth below the costal margin, and the liver was also slightly enlarged. Examination of the blood showed benign tertiary parasites in fair numbers, large intra-corpuscular forms being seen. Under treatment with quinine the spleen had diminished and the patient had improved.

Abnormal Cysts on the Shoulders in a Baby 6 weeks old.—Dr. ERIC PRITCHARD.—The two cystic swellings were noticed immediately after birth. The presentation was said to have been that of a shoulder (left). The swellings appeared to be of the nature of abnormal and persistent capita succedanea.

A Case of (?) Polio-encephalitis.—Dr. J. W. CARR.—A boy, aged 7 years, had an attack of diarrhœa with severe headache and pains in the

limbs in October, 1913. He became unable to stand or speak, and also appeared to be blind. On admission in December he could not stand alone, and could see only imperfectly, and there was a considerable degree of mental deficiency. The optic discs showed evidence of a subsiding neuritis. After five weeks he began to improve as regards mental condition, sight and movement, though he still had an ataxic gait. Wassermann's reaction negative.

Deficiency of Endocrinic Glandular Secretion.—Dr. F. G. CROOKSHANK showed a boy, aged 32 months, who did not speak and was apathetic and flaccid. Some of the features were suggestive of Mongolism. The upper part of the trunk and the arms were relatively less developed than the belly, which was protuberant, and the legs were large and shapeless. The external genitals were poorly developed. It was thought that the child had, in addition to some degree of Mongolism, some pituitary deficiency.

Lymphatic Leukæmia under Treatment by Benzole.—Dr. H. D. ROLLESTON and Mr. E. J. BOYD showed a boy, aged $6\frac{1}{2}$ years, who had developed enlargement of the cervical glands after measles and pneumonia. Subsequently the axillary, inguinal, and submaxillary glands also enlarged and the spleen was palpable. In December the leucocytes were 60,000; large lymphocytes, 54 per cent.; small, 16·5 per cent.; polymorphonuclears, 25 per cent. He was treated with benzole, at first mij , and later miiij , *t.d.s.* On January the 13th the leucocytes were 16,000; large lymphocytes, 41·5 per cent.; small, 46 per cent.; polymorphonuclears, 10 per cent.

Dental Cyst following Fracture of an Incisor Tooth.—Mr. PHILIP TURNER showed a boy, aged 12 years, whose right central incisor had been fractured as the result of a fall two years ago. Swelling of the jaw noticed three months ago. There was now bulging forward of the facial aspect of the superior maxilla, depression of the palate on the right side, and widening of the alveolar process. A radiogram showed that the pulp cavity of the fractured tooth was exposed, and that the open apex led directly to the cyst. The right temporary canine had not been shed, and the permanent canine was displaced.

Deformity of the Spine of (?) Congenital Origin.—Mr. L. E. C. NORBURY showed a girl, aged $5\frac{1}{2}$ years, with a prominence of the last dorsal and the first lumbar spinous processes. Slight mid-dorsal lateral curvature with convexity to the left. No pain or rigidity. X-ray examination showed a wedge-shaped condition of the first and second lumbar vertebræ. Von Pirquet slightly positive.

The following specimens were shown:

Double Hydro-Ureter (Congenital).—Dr. ERIC PRITCHARD.—The infant, aged 7 months, was admitted for diarrhœa and vomiting. The bladder was not distended, but two cystic swellings could be felt internal to the anterior superior iliac spines. The obstruction appeared to have been due to valve-like pressure of the dilated ureters, the primary dilatation being probably due to congenital atresia of the ureteral orifices. The renal pelves were greatly enlarged.

An Unusual Case of Jaundice.—Dr. J. PORTER PARKINSON showed specimens from a case which he considered to have been acute yellow

atrophy of prolonged duration. The illness commenced with a rigor. Three weeks later jaundice appeared. The liver was then enlarged, but subsequently diminished until death. No leucin or tyrosin were detected in the urine.

Two Cases of Transitory Diabetes Insipidus.—Dr. LEONARD GUTHRIE and Dr. G. A. SUTHERLAND read a short paper on this subject. The first case was a boy, aged $2\frac{1}{2}$ years, in whom the disease lasted about six weeks. He took twelve pints of water a day, and the urine, which contained no albumin or sugar, was of specific gravity 1004. There was some diarrhœa, and the motions were of a peculiar bluish-grey colour. In the second case, a boy, aged 2 years, the duration was about five weeks. The main symptoms were thirst, drowsiness, and polyuria. There was diarrhœa, and the motions were loose, putty-coloured, and offensive. The liver and spleen were enlarged. In each case, as the thirst, drowsiness, and polyuria passed off, the appetite became voracious for a week or two. A possible explanation was that the intestinal derangement set up toxæmia, which, acting on the kidneys, prevented the output of waste products. Another explanation was that the symptoms were due to toxæmic affection of the vaso-motor centres and sympathetic system, or perhaps of the pituitary body.

MEDICO-CHIRURGICAL SOCIETY OF EDINBURGH.

December the 3rd, 1913.

Isolation and Quarantine Periods in the more common Infectious Diseases.—Dr. C. B. KER introduced a discussion on this subject. He agreed with Arnold that *scarlet fever* was moderately infectious for the first two weeks, but that most cases ceased to be infectious some time during the second fortnight, so that at the end of the fourth week only a small percentage remained so. He suggested that the accepted minimum of isolation should be altered from six weeks to five. Like Goodall, he held that six days was sufficient quarantine for contacts.

Diphtheria.—A patient should be isolated until the necessary negative cultures had been obtained. In children, at any rate, cultures should be taken from every contact and the carriers isolated.

Measles.—Ker's usual period of isolation was a fortnight from admission, *i. e.* from the period of eruption. The quarantine period which he employed in hospital was fifteen days. Only once in seventeen years had this proved insufficient, a case occurring on the seventeenth day from the last exposure.

Rubella.—His hospital period of detention was ten days, but in outbreaks in other wards he held seven days ample. Owing to the length of the incubation period, two thirds of it should be spent at school. Thus, contacts should attend school for eight or nine days after exposure, and then be excluded until twenty-one days had passed.

Whooping-cough.—He held that rigid isolation was probably unnecessary after the paroxysmal stage had lasted a week or ten days. Under favourable circumstances and in healthy children, isolation until the whooping ceased was quite unnecessary.

Chickenpox.—He held that the patient was infectious until the last crust had separated. As regards quarantine, he allowed contacts to mix with other children up to the eleventh day and then isolated them till the twenty-second.

Mumps.—He had never seen harm result from allowing patients out of isolation a full week after the swelling had subsided. Exclusion of contacts between the thirteenth and twenty-sixth days was a safe rule for schools.

Philadelphia Pediatric Society.

January the 13th, 1914, THEODORE LE BOUTILLIER, M.D., President.

Tuberculosis Class.—Dr. MYER SOLIS COHEN described his class of twenty-four children at the Philadelphia Jewish Sanatorium for Consumptives at Eagleville, Pa. He quizzes the children as well as instructs them, and has the little patients give talks on how to get well and keep well and how to avoid infecting others. This makes the class more interesting, and renders the knowledge gained more accurate, clear and available. Emphasis is laid upon the hygienic life that must be followed after the patient returns home in order that the recovery may be permanent. The children are urged to preach to their families and friends the gospel of proper living. Instruction gained in this class will tend to prevent or diminish the usual relapses due to return to an unfavourable home environment and will render more lasting the benefit obtained at a sanatorium. In answer to a question by Dr. A. N. Davisson, Dr. Cohen said that the children must know why they use separate paper handkerchiefs, sputum cups, etc., so that they may realise their danger to others; therefore this education is of great value.

Nervous Disorders of Childhood.—Dr. T. H. WEISENBURG, by invitation, showed cinematograph pictures of the following cases: Jacksonian convulsions, three cases, one limited to arm and face, one to right side of face only, and one to face only; a whole series of cases of so-called idiopathic epilepsy, in which most of the fits were tonic and not clonic; spasmodic torticollis; many cases of idiocy and imbecility, showing cases of microcephalus, hydrocephalus, rocking movements and other mannerisms so common in these defectives; hemiplegia; a series of cases of infantile diplegia with athetoid movements; a series of cases of paralysis agitans; tabes dorsalis, also showing Fraenkel movements; a number of cases of cerebellar tumour with different cerebellar symptoms, nystagmus, etc. Dr. Weisenburg said that Little's disease originally included only infants born prematurely, at seven months. He had never found one of these infants normal so far as the nervous system was concerned, even when seen late in life. He referred to a medical student who came to him with the statement that he was a seven-months baby, but was normal; in this man "*petit mal*" existed without his knowing it. Pathologically there is always some lack of development in the nerve-tracts, because the infant was not *in utero* long enough to complete development. He referred to a baby less than a week old, which had typical Jacksonian epileptic attacks, in which recovery

followed the passage of a large mucous intestinal cast. This was the only case of "reflex convulsions" of distinct and complete epileptic type in which epilepsy had not followed that he had ever observed. He believed that infants in whom complete epileptic convulsions occur, from so-called reflex causes, have idiopathic epilepsy and will have more attacks later in life.

Société de Pédiatrie, Paris.

December the 9th, 1913. (Bulletin No. 10.)

Congenital Stenosis of the Pulmonary Artery.—MM. VARIOT and MONOD showed a girl, aged 18 years, who had no cyanosis, but marked dwarfism, her height being only 1.40 m., *i. e.* that of a girl between twelve and thirteen years of age. There was a rasping, systolic bruit over the pulmonary area.

Congenital Absence of the Right Mammary Gland.—MM. MÈRY and PASTURIER reported a case in a girl, aged 13 years, born at term. The nipple was present and normally developed, and there was absence of the lower part of the right pectoralis major.

Treatment by Typhoid Vaccine.—M. MÉRY reported the case of a child, aged 5 years, suffering from a severe attack of typhoid fever, with temperature of 41° C. treated by Prof. Vincent's typhoid vaccine, which was injected on the tenth, twelfth and thirteenth days. After a further injection on the fifteenth day, cardiac collapse occurred, but eventually the child made a good recovery.

Instantaneous Radiographs of Tracheo-bronchial Adenopathy.—
M. WEILL.

Severe General Erysipelas in an Infant, aged 11 months.—
MM. GUINON and IZARD. VINCENT DICKINSON.

Abstracts from Current Literature.

Medicine.

Azotæmia in infants ('*Riv. di Clin. Pediat.*' 1913, xi, p. 361).—**G. Rocchi-Burlamacchi** prefers this term to that of uræmia, because the latter is invariably associated with nephritis. The investigation for nitrogen in the blood has become more practicable owing to lumbar puncture, whereas previously it was necessary to bleed to 10 or 15 gm.—a dangerous proceeding in children in unsatisfactory general condition. Moog's method is used to estimate the urea in the cerebro-spinal fluid. To 10 c.c. an equal quantity of a 20 per cent. solution of trichloroacetic acid is added; the

mixture is then continually stirred and filtered. Ten c.c. of the filtrate is placed in a ureometer (Desgrez's modification of Yvon's), and 3-4 c.c. of liq. sodæ with two volumes of water is added to alkalise. The amount is then read off after decomposition by hypobromite of soda. A quantity, less than 0.50 per litre, is considered normal; when it is above this it constitutes azotæmia, and the quantity may reach 4 gr., and in rare and always fatal cases 5-6 gr. per 1000. In prognosis, persistence must be taken equally into consideration with the actual quantity. Azotæmia is most frequently met with in acute diseases—broncho-pneumonia and gastro-enteritis—less often in subacute forms. In Parrot's athrepsia it is persistent. The symptoms are cerebral, with sclerema, Kernig's sign and ocular disturbances. Renal lesions are not necessarily found. Azotæmia may co-exist with chloride retention, and there seems to be some pathological link between them. Nobécourt asserts that the high percentage of urea met with in the cerebro-spinal fluid in gastro-enteritis and sclerema depends, not only on renal insufficiency, but on a lesion of the liver. The author, however, agrees with Sevestre and Bidet in considering that it is unnecessary to explain retention of urea by insufficiency of urinary depuration, and that this may exist independently of renal lesions or changes in the liver. As there is a relation between toxic infective lesions of the liver and those of the peripheral blood-vessels, and probably also with diuresis, benefit might result from promoting the function of the liver by acting on its circulation by means of adrenalin.

VINCENT DICKINSON.

Urinary lithiasis in infancy (*Am. Journ. Dis. Child.*, 1913, vi, p. 245).—A. N. Collins reports the case of a male infant, aged 16 months, who had not micturated for twenty-four hours, and was found to have a stone impacted in the extreme end of the urethra. The calculus weighed $\frac{3}{4}$ gr., and was composed of earthy phosphates. During the following three months several smaller stones were passed, and after a further period of three months a skiagram showed the presence of two stones in the right kidney, one in the bladder, and a shadow about the crest of the right ilium—probably a stone in the ureter. Operation was refused, and nine months later skiagrams showed the calculi as before, with some destruction of the kidney substance. Shadows were also seen in the region of the left kidney. The infant continued to pass small calculi at intervals, and about a year later was operated upon for stone in the bladder. At the age of $4\frac{1}{2}$ years the child was in fair health, though the renal calculi had not been removed. After reviewing the subject the writer states that in the past urinary lithiasis, especially renal, has been accompanied by a high mortality. Of the cases of renal calculus in children, 5 years of age or under, more than 90 per cent. were 2 years old or under, and practically all of these were post-mortem cases. There is a paucity of reported cases of renal stone in infants discovered and treated surgically during life. Calculi discovered in older children or in adult life frequently originate in infancy or childhood, and the finding of sand or gravel in an infant's urine should lead to a radiographic examination of the urinary tract. Diseases of the respiratory system are frequently associated with calculus or hydronephrosis, and infectious diseases are associated in 65 per cent. of the cases. Bilateral or multiple calculi in the urinary tract afford an unfavourable prognosis, for which reason it is important to diagnose and treat cases early before the kidney becomes disorganised or infection complicates the case. When multiple involvement exists operation in successive stages may be done, but great

responsibility is attached to nephrectomy in the infant on account of the difficulty in ascertaining the functional capacity of the opposite kidney.

T. R. WHIPHAM.

Vesical calculus and pyelo-nephritis in a boy, aged 4½ years (*Rev. m'éd. de l'Est,* 1913, XLV, p. 371).—**Haushalter** and **Fairise**.—The child, who presented evidence of heredo-syphilis, was admitted to hospital for loss of appetite and abdominal pain. For the last three weeks his urine had been escaping drop by drop. Forty-eight hours before admission he had had violent headache, and a purpuric eruption had appeared on the upper part of the trunk and in the groins. The urine contained blood and albumen. Death, preceded by diarrhoea and frequent hæmorrhages from the lips, occurred three weeks after admission. Necropsy: Tuberculous tracheo-bronchial adenopathy, suppurative pyelo-nephritis, and cystitis due to an ovoid phosphatic calculus the size of a large walnut.

J. D. ROLLESTON.

Diagnosis and treatment of pyelitis in infancy (*Amer. Journ. Dis. Child.,* 1913, VI, p. 117).—**R. G. Freeman**, in reporting three interesting cases, lays stress upon instances of this condition in which the temperature is not raised, in contra-distinction to the more ordinary type with a high remitting fever. As regards treatment, he holds that while many cases may be cured by the neutralisation of the urine by alkalies and others by small doses of hexamethylenamin, the most efficient line of treatment in difficult cases is by the use of large doses of this drug, aided by vaccine therapy. For this purpose he has used hexamethylenamin in doses of 25 gr. daily for a child of six months, and from 35 to 45 gr. daily for a child of one year, with nothing but good effects. The initial doses of the drug should be small, but they should be rapidly increased.

REGINALD MILLER.

The pathology and treatment of paroxysmal hæmoglobinuria (*Jahrb. f. Kinderheilk.,* 1913, LXXVIII, p. 723).—**A. Reiss** found that during the attack in patients suffering from this disease autohæmolysis took place; this was not always corroborated *in vitro*, and if this were the case the addition of fresh complement produced lowered resistance of the erythrocytes, especially during the attack. Cholesterin had an anti-hæmolytic action and could hinder the attack. In two of his cases antiluetic treatment produced good results, which were still maintained six months afterwards.

F. R. B. ATKINSON.

A case of pentosuria in early childhood (*Monatsschr. f. Kinderheilk.,* 1913, XII, p. 177).—**H. Aron** describes such a case in a child, aged 5 years, the earliest case known. The disease is not a serious one, and the author finds the distinction from other forms of sugar can be made by the formation of hydrazone with diphenylmethan-dimethyl-dihydrazin.

F. R. B. ATKINSON.

Bilateral hydroureter; chronic pyocyaneus infection (*Arch. of Ped.,* 1913, xxx, p. 814).—**H. Heiman**.—A boy, aged 5 years, was admitted to hospital with the following history: Four months ago he had been taken ill with fever, headache and vomiting. A few days later blood appeared in the urine and stools, and pain and tenderness developed in the right lumbar region soon after. On admission the urine contained much pus, and

B. pyocyaneus was found in the urine and stools. Blood-cultures were negative. Temporary improvement followed the use of autogenous *pyocyaneus* vaccines, but the child was admitted again the following year with much pyrexia. The bladder then showed diffuse cystitis and enlargement of both ureteral orifices, especially the left. On X-ray examination there was considerable dilatation of the left ureter and left renal pelvis. The cause of the ureteral dilatation was obscure. There was no history of poliomyelitis or other evidence of nerve-lesions, nor any signs of obstruction in the ureter, bladder or urethra.

J. D. ROLLESTON.

Colon bacillus cystitis, with alkaline urine ('*Pediatrics*,' 1913, xxv, p. 579).—**F. van der Bogert** records a case in an infant girl, aged 10 months. There was no history of bowels or stomach trouble. The illness was said to have begun with much fever. Gas was passed with a loud report from the bladder both before and after micturition. Specimens of urine examined as soon as possible after passage were strongly alkaline. Bacteriological examination showed a profuse growth of *B. coli*, together with the *Staphylococcus albus*. The latter is a urea-splitting organism and might account for the alkalinity and gas formation. Recovery took place within two months under treatment with 8 gr. of formin daily.

J. D. ROLLESTON.

Retention of urine in infantile paralysis ('*Ann. de Méd. et Chir. inf.*,' 1914, xviii, p. 40).—**Schreiber** and **D'Allaines**.—It is generally held that in poliomyelitis the sphincters escape, but this is often not so. The writers quote the case of an infant, aged 9½ months, who for twenty-four hours at the commencement of the illness passed no urine; the bowels did not act for several days. There was paralysis of both legs. Excessive sweating is another symptom which is present in three quarters of the cases.

J. PORTER PARKINSON.

Vulvo-vaginitis in young children ('*Arch. of Ped.*,' 1913, xxx, p. 650).—**N. Barnett** reports on fifty cases of vulvo-vaginitis in children. The secretion was obtained by means of a platinum loop introduced into the vagina. The cervix was involved in all cases. Complications occurred in six cases—arthritis of shoulder, arthritis of wrist, general peritonitis, pelvic peritonitis and painful heel. Treatment included (1) irrigation with potassium permanganate 1 in 1000, perchloride of mercury 1 in 4000, Lugol's solution of iodine 1 in 500; (2) instillation with nitrate of silver, 1 in 400, and argyrol 10 per cent.; (3) vaginal swabbing with 10 per cent. nitrate of silver; (4) application of Lugol's iodine solution to the cervix through an endoscope. With all these methods the discharge soon ceases, but smears may remain positive for months afterwards. Vaccines were tried in fourteen cases (5 to 100 millions at intervals of three to seven days) without any improvement as regards the discharge, but the cases of arthritis were cured. Cases treated through the endoscope did much better than those treated by irrigation alone. **McNeil** (*ibid.*, p. 657) obtained a positive reaction by the complement-fixation test for gonorrhœa in eight cases of vulvo-vaginitis a year or more after infection, which perhaps shows that the infection may be active after local signs have disappeared.

C. F. MARSHALL.

The diagnosis of masturbation in girls ('*New York Med. Journ.*,' 1913, xcvi, p. 772).—**B. Kaufman** recommends the following new method:

Examine the urine microscopically to determine the absence of yeast. Let the child play with some yeast at night and then, without letting her wash her hands, put her to bed in a short night-gown. Urine should be passed into a clean vessel next morning. The presence of yeast in a centrifugalised specimen is proof positive of masturbation. J. D. ROLLESTON.

Precocious menstruation (*Journ. Amer. Med. Assoc.*, 1913, LXI, p. 563).—**F. P. Gengenbach** limits the term "precocious menstruation" to cases of more or less periodical menstrual discharge occurring in children before its usual appearance at the age of puberty. The condition is usually accompanied by signs of precocious maturity, *i.e.* "the premature development of the whole organism concurrently with menstruation and ovulation" (Morse). The writer reports the case of a child whose father was a Jew and mother an American. The first tooth erupted at ten months, at which time the menstrual flow first appeared, lasting three days. The discharge was of bright red blood from the vagina, with a slight menstrual odour. At this time the child seemed rather large for its age, but no other signs of precocious maturity were noticed. Menstruation recurred at intervals of from one to three months, most frequently at intervals of six weeks. The child menstruated eight times in fourteen months. For a few days before the periods a slight leucorrhœa was noticed; the child was rather cross and acted as if in pain. When seen at the age of two years she was a large, well-developed child of the Jewish type. Chest and abdominal examination negative as regards the internal organs. Weight 38 lb.; height 37 in.; chest below breasts 21 in.; across breasts 22½ in.; abdomen at navel 22 in.; breasts very prominent, about the size of half an orange; nipples well developed, with a slight areola and surrounded by a few hairs; hair quite noticeable in the axillæ and pubic hair very noticeable; mons veneris and labia very prominent; hymen well developed, the opening admitting the tip only of the little finger, preventing a digital examination of the pelvic organs. At the age of 28½ months the child had menstruated four times in 4½ months. The menstrual flow seemed to be increasing both in quantity and duration, and the peculiar menstrual odour was very marked. The leucorrhœa had increased, being present most of the time. The weight was 41½ lb.; height 39 in.; chest below breasts 21¼ in.; across breasts 23 in.; abdomen at navel 22 in. The breasts were noticeably more prominent, as also was the growth of hair under the arms and about the external genitalia. Accounts of other reported cases are also given. T. R. WHIPHAM.

Infantilism with Hanot's cirrhosis (*Ann. de Méd. et Chir. inf.*, 1912, xvi, p. 205).—**MM. Pagliano and de Luna** record a case of Hanot's cirrhosis with consecutive infantilism. The symptoms first shown were enlargement of the abdomen, liver and spleen. These appeared at the age of twelve years, and growth seemed arrested from this time. At the age of twenty the appearance of the patient was that of a boy of twelve years, with no secondary sexual characteristics. He was only just over 4 ft. in height, suffered from jaundice with discoloration of the stools, and spleno-hepatomegaly. The Wassermann reaction was negative, and the red blood-cells showed none of the characteristics of acholuric jaundice. The urine was dark. There were no signs of hypothyroidism or hypopituitarism. The patient at the age of twenty showed some evidences of pulmonary tuberculosis, but this clearly was not responsible for the retarded development.

REGINALD MILLER.

Dyspituitarism (*Am. Journ. Dis. Child.*, 1913, VI, p. 145).—**Mark Reuben** records that in 1840 Molu demonstrated the relationship of adiposity to tumours of the hypophysis, and that Marie and Marinesco were the first to draw attention to the relationship between that condition and changes in this gland. In 1891 Cunningham found that gigantism occurred in persons with unossified epiphyseal centres afflicted with pituitary disease, and that acromegaly resulted from the same pathological condition in individuals with ossified centres. Total removal of the gland causes death within two or three days, with symptoms of cachexia. Anterior lobe insufficiency in the young causes adiposity and infantilism, in the adult adiposity and sexual degeneration. Posterior lobe deficiency brings about increased sugar tolerance, hypotrichosity and adiposity. Removal of the posterior lobe causes polyuria, and diabetes insipidus is frequently associated with lesions of the chiasma or base of the brain. Stimulation of the superior cervical sympathetic ganglion elicits an increased posterior lobe secretion, which converts the body-glycogen into sugar. In hyperpituitarism there are hypertrichosis and increased activity of sweat-glands, in hypopituitarism axillary and pubic hair are often wanting, and the nails are small and crescentless; in hyperpituitarism there are lack of concentration and irritability, in hypopituitarism enfeeblement of memory and disorientation. The tumours cause pressure-symptoms, among which headache and vomiting are especially common. Primary optic atrophy is a common local symptom, followed as the growth increases by neuritis. Distortion of the visual fields is common, occurring first in the colour- then in the form-fields. A hemi-opic pupillary response and a negative oculomotor reaction to the prism deflection of the blind half of the retina may be expected when only half blindness is complete. Involvement of other nerves produces anosmia and trifacial neuralgia. Pressure on the central peduncles produces spasticity. Deformations of the sella turcica are of three types: (1) Thickening of the clinoid processes and of the dorsum epiphii; (2) thinning and absorption of these parts; (3) total destruction. In acromegaly the necropsy most commonly reveals sarcomata of the pituitary body, followed closely in order of frequency by adenomata and hyperplasias. Various clinical types are then described: (a) Fröhlich type, due to hyposecretion of the posterior lobe characterised by ocular and other neighbourhood symptoms without acromegaly. Adiposity with genital aplasia and hypotrichosis are present. (b) Bromier type, due to hyposecretion of both lobes, characterised by optic nerve atrophy, marked dwarfism, adiposity and atrophy of external and internal genitals. (c) Mixed types of Cushing due to alteration of hypo- and hypersecretion of one or both parts of the glands. With regard to diagnosis, posterior lobe insufficiency is indicated if orally 150 grm. of glucose and 100 grm. of lævulose can be taken without producing glycosuria. Surgical intervention is undertaken to relieve cerebral pressure by sub-temporal and to mitigate headache by sellar decompression. Fragmentary extirpation may be attempted; radium should be used after operation, and the whole gland given orally or hypodermically.

CHRISTOPHER ROLLESTON.

A case of congenital abnormal size of the extremities with a symptom-complex resembling acromegaly (*Jahrb. f. Kinderheilk.*, 1912, LXXV, p. 540).—**V. Salle** describes the case of a boy who at the age of six weeks showed the following characteristics of acromegaly: Large nose, prominent chin, large lobes of the ears, big tongue, very long fingers and toes.

Death occurred at two and a half months of age, and section revealed an enlarged sella turcica and a protuberant hypophysis containing numerous eosinophile cells.

F. R. B. ATKINSON.

The chemical composition of the thymus gland in children (*Arch. f. Kinderheilk.*, Baginsky Festschrift, 1913, p. 491).—**L. Mendelsohn** finds the composition of the gland to be watery contents 81–82 per cent. and dry substance about 19 per cent. Of the dry substance about 82 per cent. contained nitrogen, 7 per cent. was fat, and 9 per cent. ashes.

F. R. B. ATKINSON.

The function of the thymus gland (*Amer. Journ. Obst.*, 1913, LXVII, p. 808).—**A. E. Lampé** gives a brief account of the researches which have been made into the functions of this gland. When the thymuses of dogs were completely extirpated at the time of their greatest activity the following results were obtained: At first the thymectomised animals developed exactly as the control dogs. Accordingly the first two to four weeks are known as the “latent period.” Afterwards characteristic differences soon appeared. In the thymectomised animals a marked layer of fat developed; if one touched them they were found to be soft and flabby and the muscles were less firm. Whilst the control dogs ran about for hours at a time, those operated upon rested every few minutes. The gait became wide and awkward. If one attempted to bend the extremities a pronounced elasticity was observed. The dog operated upon was also distinguished by an enormous appetite. This second stage constitutes the “stadium adipositatis.” In about the third or fourth month other changes were added to these. The body-weight fell in spite of the ingestion of an enormous quantity of food. The weakness of the body, and especially of the bones, increased. The animals fell easily, and at times were seized with a general trembling of the muscles. The bones of the extremities bent under the weight of the body and frequent spontaneous fractures occurred. This condition continued for months, and was succeeded by imbecility, coma, general paresis and death. This last stage is known as “Stadium cachecticum,” “idiotia thymica,” “coma thymicum,” or “cachexia thymopriva.” Lampé summarises the functions of the gland thus. The thymus gland is an organ of vital importance. Extirpation at the height of its development results finally in death. Most probably its most important function consists in binding acids, thus removing injurious substances from the blood. This supposed function gives us an explanation of the disturbances occurring in the calcium metabolism after extirpation of the organ, and of the changes in the bone and central nervous system. The thymus gland occupies a dominating position over the lymphatic apparatus. Between the thymus on the one hand, and the organs of internal secretion on the other, complex relations exist. This is especially true of the spleen. This organ is, so to speak, “prepared” by the thymus to take up some of the latter organ’s still unexplained functions after involution.

FREDERICK LANGMEAD.

A case of hypertrophy of the thymus (*Semana Med.*, 1913, xx, p. 1077).—**Schweizer** had under observation an infant aged 5 months who since birth had suffered from stridor, choking, and occasional attacks of cyanosis. The suspicion of enlarged thymus was confirmed by radioscopy. As there was a possibility of the enlargement being specific 10 injections of mercury were made, but without producing any change. Operation was then carried out, and a piece of the thymus weighing 6 grains removed.

The symptoms, however, persisted. Intubation was performed, and the child then breathed easily without stridor or choking. The cause of the difficulty in breathing was then ascertained to be either at the beginning of the trachea or in the larynx below the cord. The enlarged thymus was not the cause of the stridor. The child is still under observation.

M. D. EDER.

Tracheal obstruction due to thymus gland (*Arch. of Pediat.*, 1913, xxx, p. 680).—**H. L. Lynah**.—A child, aged $3\frac{1}{2}$ years, had been intubated for laryngeal diphtheria. Removal of the tube after a few days was followed by marked dyspnoea, so that the tube had to be re-inserted. There were marked signs of a bronchiectatic cavity in the lower lobe of the lung and marked symptoms of thymic asthma. An enlarged thymus was found by the X rays. The child had been asthmatic since birth, but had never had convulsions. Injection of antitoxic sera on two occasions for the diphtheria never produced anaphylaxis, although the child was of the type associated with the *status lymphaticus*.

F. R. B. ATKINSON.

Röntgen-ray treatment of thymus hypertrophy (*Cleveland Med. Journ.*, 1913, xii, p. 341).—**C. W. Wyckoff**.—Since 1907, when Friedlander reported the first case treated successfully in this way, some fifteen similar cases have been recorded. Wyckoff adds three more, two of whom recovered completely and the other was improving under treatment. He states—(1) that the Röntgen ray properly used seems to be the most efficient means of treating enlarged thymus with symptoms of thymic asthma, and no harmful results have as yet appeared. (2) Severity of symptoms must regulate the number of exposures. (3) A short strong exposure of five or eight minutes will accomplish the same results, without danger, as fifteen or twenty minutes' weak exposure. (4) Not only does relief from symptoms follow, but there is a marked improvement in the general condition of the child. (5) The diagnosis of enlarged thymus depends chiefly upon the symptoms, the radiogram and the result of Röntgen-ray exposure. Physical findings cannot be relied upon.

FREDERICK LANGMEAD.

Some congenital abnormalities of the thyroid gland (*Austral. Med. Journ.*, 1913, ii, p. 1087).—**S. Pern** describes two cases of babies born with a goitre, which in one disappeared with thyroid extract and in the other with calcium lactate.

F. R. B. ATKINSON.

Congenital bronchocele (*Med. Chron.*, 1913, xxvi, p. 22).—**E. D. Telford** describes the case of a child, aged 14 days, suffering from dyspnoea and cyanosis and an enlarged bronchocele. The urgency of the symptoms necessitated surgical intervention. The tumour was removed, the symptoms disappeared immediately, and recovery ensued. The author believes hemi-thyroidectomy to be the operation for choice.

F. R. B. ATKINSON.

Congenital cyst of the thyroid gland in a child aged 1 year, producing death by asphyxiation (*Am. Journ. Dis. Child.*, 1913, vi, p. 408).—**H. C. Clark** and **A. G. Farmer**.—The child was not taken ill till twenty-eight hours before death, when dyspnoea set in and gradually increased. A doctor was not called till after death. The neck was enormously swollen owing to the presence of a tumour, which, when dissected

out, measured 6 cm. in its vertical diameter, 6.5 cm. in transverse diameter, and 2.5 cm. in antero-posterior diameter. The tumour caused marked stenosis of the trachea for about 2 cm. Microscopical examination showed the tumour to be a foetal adenoma with hæmorrhages and cystic changes in its neighbourhood. A marked degree of lymphatism was also found. The thymus weighed 47 grm., but had not caused any tracheal or bronchial compression.

- J. D. ROLLESTON.

Infantilism with dysthyroidal symptoms (*Med Record*, 1913, LXXXIII, p. 681).—**R. H. Hoffmann** reports a case of infantilism in a man, aged 21 years. He was short in stature, sexually immature, and mentally a boy of about twelve years. Good pictures of the case are shown, and they certainly suggest a condition of infantilism due to hypothyroidism. The author, however, excludes this, as the pulse-rate is 90-110 per minute, the sugar tolerance normal, and the sella of natural size, and regards the case as one of dysthyroidism.

REGINALD MILLER.

Mongolism in children (*Jahrb. f. Kinderheilk.*, 1912, LXXVII, p. 317).—**W. Shukowsky** and **R. Aisenberg** review the literature and record a case in a female child, aged 2 years, in whom mongolism was associated with myxœdema, as shown by swelling of the subcutaneous tissue of the neck and below the scapulæ. Under thyreoidin treatment the swellings disappeared and the weight sank, but the mongolism was unaffected.

J. D. ROLLESTON.

Gaucher's disease (large-celled splenomegaly) (*Am. Journ. Med. Sci.*, 1913, CXLVI, p. 863).—**N. E. Brill** and **F. S. Mandlebaum**, in an elaborate paper on what is commonly called the Gaucher type of splenic anæmia, separate this disease from splenic anæmia on the grounds that its morbid anatomy is unique and its clinical features distinctive, and to emphasise this suggest the title Gaucher's disease. Its characteristic features are: incidence in childhood with insidious onset, usually before twelve years of age; its familial, but not hereditary occurrence; the large size of the spleen, which often becomes colossal (average weight 7.2 lb.), followed by a similar hepatomegaly; a brownish-yellow discoloration of the skin; a peculiar yellowish, wedge-shaped thickening of the conjunctiva, commonly present on both sides of the cornea; the prolonged course of the disease, which does not materially disturb the general health; late in the disease a liability to hæmorrhages, especially from the nose and gums and into the skin as the result of the slightest damage; even in the earliest stages there is leucopenia, and the total leucocyte count may fall as low as 500 per c.mm., but anæmia is a late event; jaundice does not occur and ascites is exceptional. The spleen, liver, lymphatic glands and the bone-marrow contain large cells, 20-40 μ in diameter, with small nuclei and cytoplasm which often appears wrinkled. These cells do not contain any neutral fat, cholesterin, or cholesterin esters; chemical tests for the presence of lipoids are now being carried out. The affected organs give the reaction for iron. The authors accept fourteen cases only of this condition, twelve of which were in females. The average duration of the disease in patients who did not die from splenectomy was 19.2 years; in one instance it was 36 years. As the morbid process is not confined to the spleen, removal of that organ cannot be regarded as a panacea, but the results thus obtained appear more successful than those of any other method of treatment.

H. D. ROLLESTON.

Salts of calcium in the organism of rachitic and tetanic infants (*Riv. di Clin. Ped.*, 1913, xi, p. 721).—**L. Pollini** details the results of his investigations on six cases in which he estimated the amount of lime present in each of the organs. There was no special distribution of lime in the organism of children with rickets or spasmophilia. The diminished retention of lime in the skeleton in rickets did not extend to other organs. In both diseases there was a marked accumulation of lime in ductless glands and in the cartilages, but little can be inferred from this fact. These negative results point to the conclusion that hypocalcification of the organism is not a constant feature in spasmophilia or rickets; on the contrary, the tissues are often rich in lime. If, therefore, deficiency of lime has any connection with these diseases, the exact relation must be very complex, and dependent in some way not only on the abnormal distribution of this salt, but also on disturbances in equilibrium of the relations which normally exist between the various salts as regards synergic or antagonistic action.

VINCENT DICKINSON.

Otology, Rhinology and Laryngology.

The treatment of persistent otorrhœa in infants and young children by the establishment of post-auricular drainage (*Med. Record*, 1913, LXXXIV, p. 157).—**Wendell C. Phillips** suggests this measure in cases in which otorrhœa has become persistent after removal of tonsils and adenoids and the failure of other treatment. His reasons are: (1) It quickly terminates an otherwise persistent otorrhœa; (2) it insures against an extension of local bone necrosis; (3) it prevents the case from becoming a chronic purulent otitis media, with all that the name implies regarding a chronic offensive discharge, loss of hearing, bone necrosis and possible serious and fatal complications; (4) finally—the most important reason—it restores and retains the hearing function. The cases he has operated upon had complained of discharge for from six weeks to five years. The results have been most favourable in young children when performed any time between four weeks and three months.

MACLEOD YEARSLEY.

Preventable deafness (*Med. Record*, 1913, LXXXIV, p. 569).—**W. H. Tomlinson** emphasises the following points: (1) Middle-ear deafness comprises about 80 to 90 per cent. of all forms of deafness. (2) Ninety per cent. of the cases of middle-ear deafness have their origin in inflammatory conditions of the naso-pharynx with extension to the ear by way of the Eustachian tube. (3) Adenoid tissue in the epipharynx is the most frequent predisposing cause of middle-ear disease. (4) Systematic aural examination in adenoid cases discloses the fact that a high percentage, probably 75 per cent., have some grade of ear involvement. (5) The findings of routine ear examination in children with adenoids confirms him in the belief that many cases of middle-ear deafness first noticed in adult life have their origin in inflammatory conditions of the naso-pharynx dating from childhood. (6) The milder acute forms of catarrhal otitis should receive appropriate treatment, for if untreated they are liable to assume the chronic form. (7) Routine treatment of chronic catarrhal deafness leaves much to be desired. More careful work is necessary if the best results possible are to be secured. (8) This is an age of preventive medicine. Possibly in no other field is there better opportunity than in the prevention of chronic middle-ear disease and its deafness.

MACLEOD YEARSLEY.

Mouth-breathers and deafness (*Brit. Med. Journ.*, 1913, I, p. 881).—**J. Priestley**, at a meeting of the Staffordshire branch of the British Medical Association, discussed the question of mouth-breathing and enlarged tonsils in relation to deafness, and illustrated his statements by reference to the data brought to light at school medical inspections. If the deaf cases among children generally were enumerated, it would, he said, be found year after year that they were about 6 per cent.; but if these children who breathe through the mouth were investigated it would be found that 38 or 40 per cent. of them were deaf. If, however, the children with enlarged tonsils were taken and all those rejected who, in addition to having large tonsils, breathed through the mouth, the proportion of deaf cases among the remainder was again only about 6 per cent. This showed that enlarged tonsils as such did not entail any danger of deafness. Similar conclusions were come to regarding adenoid growths on the naso-pharynx. It was the mouth-breathing which entailed the danger.
J. ALLAN.

The prevention of mouth-breathing (*Clin. Journ.*, 1913, XLII, p. 490).—**Warwick James** discusses the usual results of mouth-breathing. He describes a wire frame over which a sheet of rubber dam is stretched and the whole placed inside the mouth, resting on the outer surfaces of the teeth and gums.
MACLEOD YEARSLEY.

Hysterical deafness in children (*Med. Chronicle*, 1913, XXVI, p. 31).—**J. Arnold-Jones** describes three cases of hysterical deafness which are of great interest to all concerned with child deafness. The patients were a boy aged 3 years, a girl aged 3 years, and a girl aged 8 years. In only one were other hysterical stigmata present. In all three deafness was apparently central, sudden in onset, and in the first two occurred after fright. Syphilis was excluded.
MACLEOD YEARSLEY.

Dumbness in children who can hear (*Wien. klin. Rundschau*, 1913, XXVII, p. 2587).—**Fröschels** deals with the children in whom the auditory centre, Broca's centres, or the paths from Wernecke's centre to Broca's are affected. The child can hear but is unable to utter any sounds. To recognise the absence of deafness is not easy. In the external auditory canal of deaf-and-dumb children no tickling sensation is produced when the canal is gently stimulated by a cotton-wool mop—normal children or these dumb children shake the head or laugh. Soft-sounding bells can be used to awaken the centre, and by series of graduated practice full speech can be obtained. In other cases in which Wernicke's centre is affected, the centre can be re-educated by the eye or touch, and the acoustic centre be gradually brought into association with the centres for vision and touch. Rickets, pneumonia, and whooping-cough seem to be predisposing causes; in sensory dumbness convulsions are an almost invariable antecedent. Treatment is very satisfactory: Fröschels has had 100 per cent. cures, including cases of twelve, fourteen, and twenty years' dumbness.
M. D. EDER.

Toxic acoustic neuritis and changes in the corresponding ganglia in diphtheria (*Zeitschr. f. Ohrenheilk.*, 1913, LXVII, p. 193).—**L. Lewin** examined the acoustic nerves of fifteen children who had died of diphtheria, and in seven cases, in four both nerves and in three one nerve, he found changes in both nerves and ganglia. In three cases where the nerves were intact changes were present in the ganglia. This finding showed that the disease of the ganglia was primary and that of the nerves secondary. Lewin

regards the condition as a retro-labyrinthine acoustic neuritis, and thinks the lesions were of circulatory origin and due to the thrombotic action of diphtheria toxin. No examination of the auditory function was made during life in these cases.

J. D. ROLLESTON.

The value of nasopharyngeal surgery in the treatment of chronic exudative otitis media (*Johns Hopkins Hosp. Bull.*, 1913, xxiv, p. 289).

—H. O. Reik considers that the relationship between nasopharyngeal conditions and commencing and progressing middle-ear disease has been thoroughly established, and that the early correction of such abnormalities is good prophylactic medicine. The possibility, however, of relieving chronic middle-ear conditions by removing the nasopharyngeal trouble is not so universally agreed upon. Reik believes that failures in this treatment can be explained, and gives the results of a careful study of a series of such cases from his private practice. Out of 34 cases, 32 showed immediate improvement, 2 showed no change. Later, 26 remained improved, 4 showed additional improvement, and only 2 lapsed back. From his cases he deduces that correction of nasopharyngeal abnormalities will almost certainly check the advance of the aural disease, and, in some instances, result in improvement. It is not, however, possible to predict what will happen. Failure lies in incomplete or improperly performed operations.

MACLEOD YEARSLEY.

Case of recurring fibroma of the naso-pharynx (*Austral. Med. Gaz.*, 1913, xxxiii, p. 541).—W. N. Robertson describes this case in a child, aged 10 years. The fibroma recurred on one occasion, the second time permanently.

F. R. B. ATKINSON.

Development of the pharynx by muscular exercises after operation for adenoids (*Lancet*, 1913, ii, p. 1758).—F. Warner advises exercises of the pterygoid muscles for the purpose of developing the bony boundaries of the pharynx. These, as well as special breathing exercises, are described fully in the paper, which should be read *in extenso*. Warner refers specially to these exercises in feeble-minded children.

MACLEOD YEARSLEY.

Removal of adenoids by direct inspection (*Ann. of Otol.*, 1913, xxii, p. 273).—J. C. Beck draws forwards the soft palate by means of a catheter passed through the nose. The head is extended and a good view of the naso-pharynx is obtained under complete anæsthesia. The adenoid mass is then removed completely with whatever instrument the operator prefers.

MACLEOD YEARSLEY.

Why does the operation for removal of adenoids frequently fail to relieve mouth-breathing? (*Arch. of Ped.*, 1913, xxx, p. 727).—H. M. McClanahan, from an investigation of 52 children, concludes that (1) a careful examination of the case before operation will determine with a reasonable certainty the degree of relief that will follow the removal of adenoids; (2) where there is a deformity of the superior maxilla a frank statement of the facts will relieve the operator from unjust criticism; (3) where anatomical defects exist parents should be told the facts and given the opportunity to have corrective treatment instituted by the ortho-dentist; (4) the best evidence of such defect is malcoaptation of the teeth.

MACLEOD YEARSLEY.

The cause of enlarged tonsils and adenoids in children and their treatment with lymphatic gland extract (*Brit. Med. Journ.*, 1913, I, p. 1159).—**Hugh T. Ashby** advances the theory that the enlargement of the tonsils and adenoids is an attempt on the part of Nature to augment the lymphoid tissue of the body and supply a deficiency of this tissue in other parts of the body. He has, therefore, prescribed lymphatic gland extract (prepared in the same way as thyroid gland extract), 5 gr. thrice daily. About thirty cases have been treated in this way. No bad effects have been observed, and nearly all the children have improved in a very satisfactory way; the snoring and noises in breathing have disappeared and the tonsils have diminished in size.

J. ALLAN.

The treatment of adenoids and enlarged tonsils without operation (*Brit. Med. Journ.*, 1913, I, p. 1157).—**W. Steuart** advises the use of the X rays and gives a series of illustrative cases. Röntgen rays have a stimulating effect on chronically inflamed adenoid tissue and enable it to resume its healthy condition. The tonsils do not entirely regain their normal size, except in favourable cases, but the decrease in size is sufficient to dissipate all obstructive symptoms. Conditions dependent on the septic state of the tonsils and adenoids are relieved. Objection is raised to surgical treatment on the grounds that it cannot be right to remove tissues that have a definite function, and that there might be the risk of disseminating tuberculosis in tonsils which owe their enlargement to that disease. The radiological method takes longer, but there is no shock to the child and no convalescent period. The dose used never exceeded half a Sabouraud dose. Some points in connection with technique are appended.

J. ALLAN.

Diseased faucial tonsils and their treatment (*Pacific Med. Journ.*, 1913, LVI, p. 669).—**C. P. Johnson** emphasises the following points: The importance of the supra-tonsillar fossa; that normal tonsils atrophy after puberty; that the direction of the crypts in the upper third of the tonsil is downward and outward; the importance of the tonsillar artery; that diseased tonsils produce a foul breath; the importance of an early differential diagnosis between diphtheria and follicular tonsillitis; the relation of the tonsils to the thyroid gland; that diseased faucial tonsils may be the cause of caries and irregular alignment of the teeth; that diseased tonsils are injurious to the voice; the tonsil as a site of tuberculosis; the value of surgical treatment in diseased faucial tonsils; that alypin is the best local anæsthetic; and that the removal of tonsils should be guided by a sane and safe conservatism and common-sense.

MACLEOD YEARSLEY.

Albuminuria in chronic tonsillitis (*Thèses de Paris*, 1912-13, No. 404).—**M. Tarim**.—Albuminuria may occur as a complication of chronic tonsillitis (enlarged tonsils, caseous follicular tonsillitis or chronic abscess of the tonsils). It may be continuous or intermittent and is almost always accompanied by hæmaturia, which may be visible to the naked eye or only revealed by the microscope. It is difficult to associate this albuminuria with any definite form of nephritis. In any case the lesions are very superficial and readily clear up when the cause is suppressed by operation. The thesis contains the histories of twenty-six cases, seven of which occurred in children aged from six to fifteen years.

J. D. ROLLESTON.

Conservation of the faucial tonsil (*Cleveland Med. Journ.*, 1913, XII, p. 769).—**S. H. Large** clearly sums up the functions of the tonsils and the indications for their removal thus: Physiologists differ as to their functions. Problematical are (1) formation of leucocytes; (2) phonetic; (3) mechanical, as an aid to swallowing; (4) secretion of an anti-bacterial body. At the present time, in the young, the tonsil is looked upon as the watch-dog of the respiratory tract. Tonsils should be removed (1) when hypertrophy interferes with breathing; (2) in recurrent tonsillitis; (3) in peritonsillar abscess; (4) in recurrent cervical adenitis and tuberculous cervical glands; (5) when the crypts are filled with caseous masses; (6) in attacks of rheumatism associated with tonsillitis, or where the tonsil is suspected of being the focus of infection, in other diseases, as nephritis, endocarditis, arthritis, etc.

MACLEOD YEARSLEY.

Some causes of disappointment following removal of tonsils and adenoids (*Lancet*, 1913, II, p. 1612).—**W. Wilson** refers to extension of growth into Rosenmüller's fossæ and its effect upon the tensor palati, levator palati and salpingo-pharyngeus muscles, and insists upon careful attention to this region in operation. Failure to remove posterior ends of enlarged turbinals is also noted. He also insists upon the importance of after-treatment by (1) healthy exercises, (2) Politzerisation, and (3) orthodontal treatment.

MACLEOD YEARSLEY.

The hæmorrhage of tonsil and adenoid operations (*Clin. Journ.*, 1914, XLIII, p. 49).—**J. F. O'Malley**, after a brief review of the literature, discusses the normal arrest of hæmorrhage and then passes on to the question of unusual hæmorrhage. Hæmophilia, he believes, is too frequently urged as an explanation of bleeding of an ordinary surgical type. Age may affect hæmorrhage from increased vascularity. In his opinion the method of removal has a decided influence over the amount of bleeding, which is decidedly less when the anæsthesia is by nitrous oxide gas, probably owing to the fact that perfect vaso-motor control is maintained.

MACLEOD YEARSLEY.

Results in a series of cases of tonsillectomy at the Massachusetts General Hospital three to four years after operation (*Ann. of Otol.*, 1913, XXII, p. 421).—**J. P. Clark** analyses 143 cases, most of them under fifteen years of age. Hæmorrhage calling for special treatment was rare. The condition for which operation was performed was relieved in very nearly every case, with great improvement in general health. Ordinary voice or speech was practically unaffected.

MACLEOD YEARSLEY.

Tonsillectomy under local anæsthesia; new operation (*Journ. Amer. Med. Assoc.*, 1913, LXI, p. 1227).—**B. D. Sheedy** finds that as the result of enucleation of the tonsils the following deformities occur: (1) The pillars on both sides seem to disappear, leaving a flattened surface where the tonsil and pillars formerly were and a much narrowed opening into the naso-pharynx; (2) the pillars on both sides seem to grow together, leaving but one pillar where there were formerly two, with the uvula pulled to one side or the other; (3) the anterior pillar wholly disappears and a large amount of cicatricial tissue is deposited on the surface of the posterior pillar, altering its shape and function. He therefore advocates a method of operation by eversion of the tonsil. In adult patients the surface of the tonsil

and pharynx is first swabbed over with a 10 per cent. solution of cocaine. Then a 1 to 1.5 per cent. solution of bisulphate of quinine is injected into the cellular tissue surrounding the capsule of the tonsil, which causes the operation to be painless. In children under fourteen years of age ether should be employed. A tenaculum is inserted as deep as possible into the centre of the gland, *avoiding the capsule*, and a grasp is taken of the tissues extending from one side of the capsule to the other. Traction is then made until the junction of the mucous membrane with the capsule is apparent. A small blunt-pointed tonsil-knife is introduced under the mucous membrane at the point of junction with the capsule and an incision made around the tonsil. If the capsule is so contracted that the gland will not invert a nick is made in the upper angle of the capsule. With more traction the tonsil is then completely inverted and around the mass is placed a snare, the wire of which slips into the incision previously made. The tissues are then slowly cut through, one to three minutes being occupied in so doing. The tonsil is then removed without injury to the pillars—without pain and without hæmorrhage. In certain cases the capsule will not evert. These are: (1) Cases of exceedingly large tonsil in which the hypertrophied tissue escapes from the capsule and everts the tonsil; (2) cases in which the oropharyngeal surface of the tonsil is so limited by a contraction of the capsule holding within itself a limited mass of cicatricial tissue that it in no way resembles a tonsil; and (3) cases in which the tonsil is only slightly hypertrophied, but in which the cicatricial tissue surrounding the capsule has been displaced by fibrous bands due to previous attacks of inflammation and peritonsillar abscess.

T. R. WHIPHAM.

Vincent's angina (*New York Med. Journ.*, 1913, xcvi, p. 468).—**L. Green** has seen this occur after measles, scarlet fever, whooping-cough, and diphtheria, especially in ill-nourished children. One child infected its clitoris, and another its rectum. A small epidemic was traced to the matron feeding several children with the same spoon. Green found trichloroacetic acid applied in full strength the most successful method of treatment.

J. D. ROLLESTON.

Complications of Vincent's angina (*Presse oto-laryng. belge*, 1913, xii, p. 145).—**V. Delsaux** records two fatal cases: (1) Woman, aged 25 years. Gangrene of left tonsil and part of soft palate. Death from sudden hæmorrhage from the tonsil. (2) Boy, aged 16 years. Ulceration of left tonsil and anterior pillar. Severe constitutional disturbance. Wassermann positive. Death from progressive anæmia on twenty-second day of disease. Blood-examination: Hæmoglobin 60 per cent., red cells 1,560,000, leucocytes 1200. Differential cast: Large mononuclears 16 per cent., small mononuclears 40 per cent., neutrophiles 44 per cent., eosinophiles and basophiles 0. Delsaux recommends that in Vincent's angina intravenous injections should be associated with local applications of salvarsan as soon as anæmia develops or other complications are to be feared.

J. D. ROLLESTON.

The Bacillus fusiformis as a cause of meningitis and cerebral abscess after injury to the pharynx by a foreign body (*Monatsschr. f. Ohrenheilk.*, 1913, xlvii, p. 1021).—**V. Frühwald**.—A girl, aged 4 years, swallowed a sewing-needle, which stuck in the posterior wall of the pharynx, and broke off in attempts to remove it. A retropharyngeal abscess developed, which was treated by mediastinotomy, but three weeks later symptoms of

meningitis supervened. Lumbar puncture gave issue to a turbid fluid under high tension containing polymorphonuclears and mononuclears. Death occurred three months after the needle had been swallowed. Necropsy: The left frontal lobe showed an abscess the size of a hen's egg, which had perforated into the lateral ventricle, and there was diffuse meningitis limited to the base with green stinking pus, from which the *Bacillus fusiformis* was cultivated. Between the two middle cervical vertebræ was a fistulous opening and a retro-pharyngeal abscess. There was a collection of pus beneath the spinal dura mater.

J. D. ROLLESTON.

Safety-pin removed from larynx of child by direct laryngoscopy ('*New York Med. Journ.*,' 1913, xcvi, p. 313). — **Harmon Smith.** — Child, aged 2½ years. The pin was extracted without difficulty or hæmorrhage thirty-seven days after the onset of symptoms, during which time the condition had been mistaken for bronchial croup, diphtheria and laryngeal papilloma.

MACLEOD YEARSLEY.

Acute primary œdema of larynx in children ('*Thèses de Paris*,' 1912-13, No. 329). — **J. Ernoul.** — This is a very rare affection. The efficient cause is microbial infection, but the organism varies—sometimes the pneumococcus, and sometimes the staphylococcus and spirilla or an association of these germs being present. The condition may be very difficult to distinguish from laryngeal diphtheria, but the dyspnoea is of an inspiratory type, and the voice and cough are little or not at all affected. In many cases bacteriological examination alone settles the diagnosis. Treatment in mild cases consists in applications of warm compresses to the neck, antispasmodics and steam; in some cases tracheotomy alone is indicated. Intubation may either produce a fatal spasm, or the upper end of the tube may be obstructed by the laryngeal œdema. The thesis contains the histories of five cases, one of which is original.

J. D. ROLLESTON.

Reviews.

THE DISEASES OF CHILDREN. By J. F. GOODHART, Bt., M.D., F.R.C.P., and G. F. STILL, M.D., F.R.C.P. Tenth Edition. London: J. & A. Churchill, 1913. Price 16s. net.

There is little that need be written of this favourite text-book, save to extend a hearty welcome to the new and tenth edition. With each succeeding edition it is interesting to compare the new with the old: particularly is this the case in the present instance, where each author has such a distinctive style that one can trace, or fancies one can trace, the authorship of each paragraph. In this edition the preface stands over Dr. Still's name. Some new chapters have been added, notably one on influenza, and some re-written; while the rest of the book has been revised to date.

It is curious to note that where the book deals with chronic arthritis, two separate but consecutive paragraphs are entitled "Rheumatoid Arthritis or Osteo-arthritis" and "Chronic Arthritis with Enlargement of Glands and Spleen (Still's Disease)."

It is certainly a responsible task to have the keeping of this widely appreciated text-book up to date, and we offer our congratulations upon the way in which it has once more been carried out.

R. M.

ORTHOPÉDIE ET TUBERCULOSE CHIRURGICALE. No. 1, January, 1914.
Pp. 92. Subscription, 15 francs for France, 18 francs for other countries. Paris: Baillière et fils.

Messrs. Ménard, Calvé and Lamy have every reason to be congratulated on the excellence of the first number of the new periodical they edit, 'Orthopédie et Tuberculose Chirurgicale.' In their editorial they draw attention to the close association of tuberculous disease with many of the deformities, and therefore include the word in the title of the periodical.

Of the many excellent articles, perhaps the most instructive is one by Dr. V. Ménard himself on the correction of the spinal deformity caused by Pott's disease. His arguments are clear, the illustrations good, and the X-ray photographs of the actual cases most convincing. There is an excellent article on scoliosis by Dr. Robert W. Lovett, of Boston, followed by one on the Hospital and College at Alton, by the Superintendent, Dr. H. G. Gauvain. There is a paper on the treatment of scoliosis by rotation, by Dr. Mackenzie Forbes, of Montreal, with a discussion on the subject by Dr. H. Rupert Derome. A paper by Dr. L. Lamy on torsion of the tibia also calls for mention. There are many other excellent papers which will repay study, but time and space preclude giving details. There is an excellent review of the recent literature on the orthopædies of all countries given at the end of the magazine.

The editors are backed by an imposing list of collaborators, and if the standard of the first number is maintained the prosperity of the venture is assured. We wish it all success.

D. C. L. F.

THE HEALTHY MARRIAGE. By G. S. WRENCH, M.D., B.S. London: J. & A. Churchill, 1913. Price 3s. 6d. net.

The practical information in this book is on the whole quite sensible; any woman might read with probable advantage Dr. Wrench's remarks on high heels, sleep, eggs, and hobbies. He is no faddist, and is especially to be commended in these days for not seeking to impose laws as to how a woman should do her hair or cook her dinner. He sees that a little wine or beer may be a pleasant thing, though it offend hygiene; he can even write somewhat kindly of the corset.

The author has a number of delusions on the habits and thoughts of primitive man, the Orientals, and Western girls. There is no great harm in wishing that English people should imitate the habits of the East, but it is well to be properly acquainted with those habits before giving advice. It is a pity that the little book should be marred by so many scraps of Tupper philosophy.

M. D. E.

SANATORIA FOR THE TUBERCULOUS. By F. R. WALTERS, M.D., M.R.C.P. London: George Allen & Co., Ltd., 1913.

THIS work may be looked upon as a supplement in many ways to the 'Tuberculosis Year-Book' (see BRITISH JOURNAL OF CHILDREN'S DISEASES, 1914, xi, p. 96), in that it contains a description of numerous sanatoria in the countries of Europe, a part of the subject very slightly touched upon in the latter work. In addition, the book contains a description of the various sanatoria in the British Isles, and a general part dealing with the sites for sanatoria, the objects which should be kept in view in the building of the same, and the results of treatment therein. The book is a valuable work of reference, and should be in the hands of all authorities dealing with the erection of sanatoria, as they will obtain from it many valuable hints.

F. R. B. A.